THE LANCET.

No. 4763. LONDON, SATURDAY, DECEMBER 12, 1914. Vol. CLXXXVII.

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Delivered before the Royal College of Physicians of London,

BY EDWIN GOODALL, M.D. LOND., B.S., F.R.C.P. LOND.,

SUPERINTENDENT, CITY OF CARDIFF MENTAL HOSPITAL.

LECTURE II.*

THOMAS BARLOW AND GENTLEMEN,—The beneficial results which follow upon the administration of suitable preparation of thyroid gland in certain cases of mental disorder, of which in my first lecture I gave illustrations, are not merely gratifying in themselves, but are to be welcomed as affording incidentally a striking demonstration of the dependence of such conditions upon defective metabolism. Furthermore, these results have been the means of directing the attention of those engaged in the endeavour to elucidate the pathology of the psychoses to the functions of the glands with internal secretion in relationship to states of mental alienation.

THE DUCTLESS GLANDS AND MENTAL DISEASE.

Very seldom is one's attention drawn in actual psychiatric practice to these glands, and practically to the thyroid alone, because the insane patient presents the symptoms of myxœdema or Graves's disease. The dependence of the psychosis in such cases upon the defect or disease of the thyroid gland is proved not only by the effect of medicinal treatment, but in the case of Graves's disease by that of surgical interference. Delmas[1] records a case of insanity in Graves's disease in which the psychosis disappeared three months after the operation of hemi-thyroidectomy, and a similar case is recorded by Horand and others.[2] Such instances as these, with the fact that mental disturbance occurs during thyroid treatment in predisposed persons and ceases with cessation of such, do away with the theory that the psychosis and the Graves's disease are merely concomitant and dependent upon a common cause. Actual insanity is very rare in diseases of the adrenal gland; I have only seen one case of insanity with Addison's disease, though psychical changes are known to occur. In the absence of notes I do not refer to the symptoms, but Porter Phillips[3] describes mental symptoms which pointed to neurasthenia or dementia paralytica in a case under his notice; further developments led to the correct diagnosis of Addison's disease. In a case of carcinoma of the adrenals, described by Rodinow,[4] the mental condition was that of a patient with insanity of persecution.

The work done upon the morbid anatomy of the ductless glands in mental disorders has elicited the following few facts. It is especially in epilepsy with insanity that changes are found, in the thyroid, parathyroid, pituitary, and suprarenal glands, and these are of the following general nature: to the naked eye, shrinkage, asymmetry, diminution of weight; histologically, sclerosis, with hyperæmia, or even hæmorrhagic infiltration, shrinkage of acini, diminution of colloid, proliferation of the lining epithelium of the acini. Briefly, shrinkage of the gland and replacement of essential (parenchymatous) tissue by fibrous tissue, nothing of a characteristic or peculiar kind. This morbid condition of some or all of the ductless glands in epilepsy with insanity, but especially of the thyroid, has been found in all cases as yet examined by the various workers who have reported on the subject.[5] In respect to dementia præcox and manic-depressive insanity there are no uniform results, and there is no sufficient evidence that any of the glands of internal secretion are diseased. In confusional states anatomical evidence of degeneration of function of the thyroid, hypophysis, and adrenals has been recorded (Parhon and others), but requires corroboration. In respect to dementia paralytica, de Albertis and Masini[6] record their results in 20 cases in respect of the thyroid gland checked by numerous controls; in about 75 per cent. there were similar changes to those given above. The function of the gland was, in their view, wholly or in part abolished. But it has to be borne in mind that sclerotic changes may and do occur in other organs, such as the liver and kidney, in chronic cases of insanity. It is clear that the work done upon this subject is much in need of extension, amplification, and control by means of parallel observations upon sane persons of the same age who have died from the same common maladies as the insane persons examined; control further, by examination of other organs in the same person, such as the heart, liver, and kidneys. Gorrieri[6] is one of the few writers with whom I am acquainted who have proceeded on these lines, making numerous controls in sane persons, and he finds that anatomical changes in the ductless glands are more frequent in the insane in respect to epileptic insanity. Further, Amaldi[7] found lesions of the thyroid in 56 per cent. of 107 individuals suffering from various (the most diverse) forms of insanity, as against 32 per cent. of 22 sane controls. Evidence of hypoplasia of the ductless glands in cases of defective brain development, more pronounced than hypoplasia of the organs in general, has not been furnished, not sought for even, that I am aware of.

TOXICITY OF FLUIDS IN THE INSANE.

This point has not been systematically inquired into, and there are very few observations of value. One reads, and more especially hears, a good deal about "toxins" in the psychoses, but the familiarity with which the term is used is not based upon pathological and chemical research. Such work as has been done has mainly been with the fluids of epileptics, no doubt on account of the interest attaching to the problem of the epileptic seizure.

Blood Serum and Cerebro-spinal Fluid; Urinary Colloids.

Although I have not worked directly at the problem of the toxicity of the body-fluids in the insanities, I have, in conjunction with my friend and co-worker, Dr. H. A. Schölberg, inoculated intravenously 80–90 rabbits with the blood serum and cerebro-spinal fluid of pronounced cases of dementia paralytica and the blood serum of recent and chronic cases of dementia præcox. This work I shall refer to in connexion with the subject of the production of precipitin and antibody, as it was carried out with a view to studying

* Lecture I. was published in THE LANCET of Dec. 5th, 1914, p. 1227. No. 4763.

such production, and not with a view to studying toxicity. It will suffice here to say that the serum was employed in doses of from 2 to 3·5 c.c., and in total amount as much as 42 c.c. were injected, spread over a period of weeks up to 19 weeks, in bi-weekly doses. The cerebro-spinal fluid was used in doses of from 2 to 8 c.c.; in total amount as much as 19·5 c.c. was injected during a period of one month. Of 84 animals, 28 died in the course of these injections, or 33 per cent.; excluding a few which died in anaphylaxis and from accidental causes, I should put the number dying from an unknown (? toxic) cause at 25 per cent. The majority of these showed great, sometimes enormous, wasting, whether injected with blood from cases of dementia paralytica or dementia præcox. Convulsions were not observed. The animals injected with serum from dementia præcox cases died to about an equal extent with those injected with serum of general paralytics. The numbers injected with cerebro-spinal fluid were much fewer, but no deaths occurred in them. Pilcz[8] found that white rats, after injections of 2–3 c.c. of serum from general paralytics, were not apparently affected, and he cites Pappenheim as observing the like in a rabbit which received 9 c.c. of cerebro-spinal fluid from a general paralytic.

As regards toxicity of the blood of epileptics, Meyer's[9] experiments go to show that there is room for further research in order to elucidate the facts. He failed to produce any symptoms in 10 out of 11 guinea-pigs injected intraperitoneally with 10–15 c.c. of defibrinated blood taken from normal persons, the eleventh dying after convulsions. Of 10 guinea-pigs injected with blood removed during an epileptic seizure, nine had typical tonic-clonic convulsions in from one to five hours after injection. Blood taken in the interval affected the animals according to the time which had elapsed since the last seizure and to the severity of the disease; sometimes there were seizures and death, sometimes there was death, at other times no result. But a second injection with the seizure-blood two to four days after the first did not produce the same results as on the first occasion. There are some grounds for the view that the toxic substances in such conditions are colloidal in nature, and more precise results might be obtained by injecting adialysable substance alone. The experiments of Loewe[10] upon urinary colloids in epileptics and in the insane support this view. He reduced the adialysable substance of urine *in vacuo*, treated it with alcohol, and dried the insoluble portion in an exsiccator; the latter keeps for many months in sealed tubes. Loewe claims that the adialysable substance is increased in epileptic urine, and that it is rich in phosphorus-holding compounds, but these important points need further investigation, especially as the increase is not limited to epilepsy, but occurs also in the katatonic phase of dementia præcox, in dementia paralytica—although after seizures—and in delirium tremens. The essence of Loewe's research, however, is his statement that, whilst the adialysate in the psychoses mentioned is highly toxic, it does not produce seizures, whereas in epilepsy it is not only toxic (chiefly in connexion with the epileptic convulsion), but produces seizures very like epileptic ones when injected intravenously. Similarly produced exsiccate from the urine of normal persons is not toxic.

Chronic Renal Disease.

Whereas mental disorders associated with morbid conditions of the ductless glands, and proved to be caused by such, might be classified as disorders of metabolism or of auto-intoxication, there are other cases in which the theory of an auto-intoxication appears more reasonable; as, for example, the case of insanity occurring in chronic renal disease, or with morbid conditions of the gastro-intestinal tract. With chronic renal disease there occasionally occurs such definite mental alienation, amounting sometimes to systematised insanity, that institution care becomes necessary. As with the disorders of mind due to the specific fevers, so with those due to kidney disease: there is no characteristic syndrome. States of confusion and stupor, hallucinations, delusions of persecution, delirium, temporary conditions of agitation or of exaltation—such are the common symptoms. The clinical picture is liable to be complicated by somatic disorders due to focal lesions in the brain. Thus the suggestion of dementia paralytica may be raised. But *vice versâ*, as was well shown by the younger Bristowe some years ago, cirrhosis of the kidneys is very frequent in dementia paralytica; yet in the absence of detailed and systematic study of other vital organs, including the ductless glands, too much weight must not be laid upon this fact. It is noteworthy that in chronic renal disease, as in the infection-psychoses, katatonic symptoms may occur; such cases are described by Bischoff and Ascoli.[11] Improvement in the renal condition brings about the like in the mental disorder in these cases of renal origin. The mental disorder which is sometimes seen in patients in whom there are foci of disease is ascribable to auto-intoxication, since it passes away on removal of such foci. Picqué[12] records two instances—the first, that of a young woman who, after months of confusional insanity, was cured by appendicectomy; the second, a patient with melancholia and hypochondriasis who had chronic prostatitis and was cured of the mental disorder by prostatectomy.

Constipation.

A great deal has been said and written upon the subject of auto-intoxication psychoses due to infection from the gastro-intestinal tract, and there is no doubt a widespread tendency to look upon the affective disorders, more especially, as in some instances either themselves or in respect of certain of their phases or exacerbations originating in disturbances of the gastro-intestinal functions associated with constipation. Apart from the common experiences of everyday life, there is more particularly the experience of the effect of purgatives in recent cases of insanity and in the exacerbations of chronic insanity. Recent cases received into institutions for the insane are very frequently constipated to an extraordinary degree, and when the constipation is at length overcome, and long before the effects (if any) of rest and special diet have had opportunity to become manifest, it is very frequently observed that the acuter mental symptoms, those which caused anxiety before admission or trouble after admission, have passed away. In passing I would state my opinion that acute and recent cases of insanity do not require special diet; they require their ordinary diet and extras in plenty. Practical experience justifies this view; exceptional instances, of course, occur; apart from these there is, in my belief, no reason for the milk diet which these patients are by some subjected to. That such symptoms as mental depression, irritability, impulsiveness with violence, inability to fix attention and to work at the customary task, a stuporose state, occur amongst

chronic cases of insanity, and are removed by an efficient purgative, is known to every experienced mental nurse. More interesting is the pyrexia which sometimes accompanies these manifestations. One meets with cases of secondary dementia, or of recent insanity passing into dementia, patients not able to express their feelings, noticed by the nurse to be mentally changed, or to look ill, or to refuse food, or abstain from work; upon taking the temperature the thermometer records 103° or 104° F. Drastic purging reveals extreme constipation, and is followed by rapid subsidence of the symptoms, including pyrexia. This picture is highly suggestive of a toxic substance acting upon an unstable brain; it appears to furnish a pure instance of a somatic disturbance inducing a psychical one. Many like myself there must be who have never seen a case in which mental disturbance antedated the somatic disorder which exists in cases of insanity; we do not see the patient at the commencement of the mental illness. I would expressly state that I am not denying that the sequence of events may be as stated; but I should require thoroughly reliable information, based upon a medical examination of the alleged instance of psychical causation at the date of the earliest mental symptoms, before crediting this explanation, and even then one would need to know something of the medical history of the patient for, say, three months before the appearance of symptoms, including information as to weight changes.

Disorder of the Gastro-intestinal Functions.

To return to my theme: Plönies[13] has described several cases in which psychoses, mostly characterised by hallucinations, imperative ideas, and depression, were due in his view to disorders of gastric digestion, objectively associated with tenderness to percussion over the gastric region and dilatation of the stomach. At any rate, mental disorder disappeared upon suitable treatment of the gastric condition. Hudovernig[14] gives the case of a man, aged 30 years, sent to the surgeon for appendicitis, and transferred to the psychiatric clinique. He showed acute confusion, with hallucinations, ascribed to some intestinal disturbance. Castor-oil was followed by foul-smelling stools; thereafter the mental disturbance passed away. His history, subsequently ascertained, showed that four days before admission to the surgical clinique he had partaken of sausage and sauerkraut, upon which the illness had supervened. Such cases as those of Plönies, especially, indicate the need for more scientific and systematic physical examination of the insane; I do not believe that under the existing system in mental hospitals anything approaching to adequate examination, including the application of the methods of the clinical laboratory, is made. I believe that this is one of the matters which will not be righted until psychiatric cliniques, as seen abroad, are established in this country. The examination of the stools in cases in which early symptoms of mental disorder are observed and in cases of periodic attacks or exacerbations should be part of the ordinary routine; the amount of the stools in 24 hours, their consistence (hard, dry, semi-liquid, membranous), their form (normal, or in scybala, or pellets), their colour, odour, and constitution (whether containing undigested food or not)—these are points for observation. Pardo[15] shows that the rate of transit of the intestinal contents is very greatly delayed in recent and acute cases; carmine mixed with the food is not all evacuated in 24–48 hours, as in healthy people, and in the patients themselves when well. Further, the dye appears, not continuously, as in health, but irregularly at intervals. Benigni[16] studied the intestinal functions in 50 cases of insanity of various kinds, the patients being upon a fixed diet, according to the method of Schmidt and Strasburger. He found disorder of one or more of the digestive functions in rather more than one half of the cases; protein digestion especially was incomplete, but the conversion of starch and fat was so also. The residual content of the fæces gave evidence of incomplete digestion.

Indicanuria.

The presence of indigo-producing substances in the urine of the insane has for long been a subject of interest, upon the supposition that their presence in excess pointed to toxæmia of intestinal origin. The teaching in respect to the mode of origin of these substances has in effect been that, by the splitting of proteins in the digestive tract, indole is ultimately formed and through the agency of bacteria; that this is absorbed through the intestinal mucosa into the system; that it then undergoes oxidation into indoxyl, which by synthesis ultimately becomes indoxyl-potassium-sulphate or indican, which is excreted by the kidney. This substance on oxidation yields indigo. When indigo is demonstrable by qualitative tests in considerable amount (at the time of the test) the patient is said to have "indicanuria." Such patients frequently, perhaps usually, exhibit constipation, and it is argued that this leads to excessive putrefaction and formation of indole. Indicanuria is, briefly, commonly believed to be due to derangement of the intestinal functions, and to connote toxæmia of intestinal origin. With regard to urinary indigo in mental diseases, statements have been made from time to time by psychiatrists which indicate a belief that the indigo-producing substances are in excess in recent and acute mental disease, or in exacerabations of chronic insanity, and more especially in manic-depressive insanity and confusional states; according to some, especially in akinetic forms of insanity in general; and this apart from constipation. It has been stated that the urine of sane controls in average and in poor health does not give anything like the indigo-reaction yielded by urine in the above-mentioned kinds and forms of insanity. Certain writers have gone beyond the point of recording an excess of urinary indigo in mental disorders, and claim to have correlated variations in the mental state with variations in the indigo; thus, Taubert,[17] in a case observed by him for six months, believes that he noted a close parallelism between psychic excitement and increased indigo, and states further that the latter was often found 10–12 hours before the maniacal phase. In four cases of manic-depressive insanity he found a considerable and lasting increase of indigo during the maniacal phase, but a fifth case showed none. Pardo[18] also makes a very complete statement as to the direct association of "indoxyluria" with mental states, and speaks of having reduced the elimination of "indoxyl" from a point 10 to 20 times above normal to practically zero by means of what he calls intestinal antiseptic treatment and a milk diet, cure of the mental disorder proceeding *pari passu*. I have never seen beneficial results in insanity from the use of so-called intestinal antiseptics, and it has been shown by Seige[19] that the marked indigo-reaction found in some cases of

mania and melancholia is not influenced by measures taken against intestinal putrefaction. Pardo's statements further imply the use of a quantitative method, apparently Maillard's; but the evidence I am about to mention shows that all such methods are unreliable.

Research on Urinary Indigo in Cases of Insanity.

The frequency of a marked positive reaction to the test for indigo in newly received cases of insanity, and in exacerbations in chronic cases, has interested me, in common with others, and some three and a half years since I suggested to my colleague, Dr. Stanford, research chemist at Cardiff Mental Hospital, that he should investigate the subject. The results of Stanford's prolonged and painstaking research have recently appeared in the *Zeitschrift für Physiologische Chemie* (Bände 87 (H. 3) and 88 (H. 1)), a preliminary communication dealing more particularly with the urinary indigo in certain cases of insanity having appeared in the *Journal of Mental Scienec*, April, 1911. Stanford points out that it has been generally assumed that because indigo is produced by the action of hydrochloric acid and an oxidising agent upon potassium-indoxyl sulphate, the indigo-producing substance of human urine is identical with the latter. And since it has been demonstrated in the urine of animals fed with indole, the assumption is further that the indigo-producing substances in human urine are derived from the indole of the intestinal canal. These assumptions are not based upon exact evidence. The indigo-producing substances of human urine have not yet been isolated.

Stanford's examination of more than 2000 specimens of human urine for indigo shows that the indigo-producing substances are extraordinarily unstable, so that the amount present in a specimen is greatly diminished in from 1–3 hours, and in from 3–6 hours from the passage of the urine these substances have mostly completely disappeared. The reason for this is unknown. There can therefore be no question of the exact quantitative estimation of indigo at present, and even qualitative estimations to be of value must be made immediately after the urine is voided. This phenomenon of the disappearance of the indigo-producing substances is not mentioned, I understand, in the voluminous literature upon the subject of urinary indigo. The instability of the substances is scarcely compatible with the assumption that they consist of potassium-indoxyl sulphate, since the chemists who have carefully studied this substance have pointed out its stability under various conditions. It is more probable that they are not always the same, but consist of a mixture of closely-related substances of the indigo group.

An approach to accuracy in the quantitative estimation of urinary indigo is probably afforded by a method briefly described by Stanford, which consists in the colorimetric estimation of a chloroform solution of the indigo contained in each quantity of urine as soon as passed, the coloured solution for comparison being standard Fehling's solution. The formula given by Stanford affords a number which is proportional to the amount of indigo present. By adding together the numbers so calculated for all the samples through the 24 hours a number is obtained which is proportional to the total indigo excreted during that period. In his latest paper Stanford[20] shows that if the extraction of the indigo by chloroform is carried out in an atmosphere of carbon-dioxide a pure blue solution is constantly obtained—a very important advance, as it permits of exact colorimetric comparison. The daily excretion of indigo-producing substances in the urine of a case of mental disease in which the mental state showed no alteration during the 10 days over which the examination was conducted was found by Stanford to vary very considerably, the variation exceeding the limits of experimental error and being unconnected with meals. Whilst recognising, as one must do, from this and other similar observations of Stanford, that there are daily and even hourly fluctuations, it may be still the case that the total indigo found over a given period, by the means now indicated, is greater in certain forms of mental disorder than in sane controls. The researches I have alluded to, which are not concluded, encourage one to believe that comparative quantitative estimations of the substances in question will ere long be available.

Pardo, in the work I have mentioned, argues that the antecedent substance of urinary indigo-red is probably produced by micro-organisms which have migrated from the intestine to the urinary passages, on the basis of experiments in which he inoculated urine, especially alkaline urine, and negative to the indigo-red test, with fæcal micro-organisms. This urine then gave a positive result with the test. But Stanford's researches show that the indigo test is positive in sterile urine. An inquiry conducted by my colleagues—E. Barton White and Stanford—shows that when bacillus coli and bacillus pyocyaneus are grown upon a variety of media of known composition and degree of alkalinity, to which small quantities of indole have been added, no indigo-producing substance was found. Lastly, in respect to the question of urinary indigo, it is to be observed that indigo can sometimes be demonstrated in cases, including cases of insanity, in which there is no evidence of disturbance of intestinal function, so that the indigo-producing substances may not be wholly due to cleavage of proteins in the gastro-intestinal tract, but are conceivably merely the expression of a disorder of metabolism which is associated with mental disorder as cause or effect.

Recently Wladytschko[21] has sought to obtain direct evidence of the noxious influence of intestinal toxins upon the central nervous system by feeding rabbits and guinea-pigs over long periods with parakresol and indole. In these instances he found regressive and destructive changes in the vessels of the brain in the cells (presumably nerve cells), and glial proliferation. The original work I have not had an opportunity to consult. Such direct experiments appear desirable on a larger scale with information as to the degree in which histological changes occur locally and generally.

Bacteriological Examination of Fæces.

One would have thought that the evidence we possess in support of the view that mental disturbance and actual insanity are in some cases due to disorders of the gastro-intestinal tract would have led long since to a critical bacteriological examination of the fæces in these cases. In point of fact, extremely little work has been done upon the subject. In 1911, at the meeting of the British Medical Association at Birmingham, I communicated preliminary results obtained by Dr. E. Barton White and myself as the outcome of the examination of a considerable number of stools from freshly-admitted cases of acute

melancholia and acute mania, the first (in a few cases the second) stool passed being taken. This work we carried on, as opportunity occurred, till the close of 1913, the major part of it during the past two years having been done by Dr. White, to whom I would here express my obligations for his coöperation and for valuable assistance in drawing up our results. I would point out that investigations of this kind are extremely laborious, and two workers merely cannot be expected to make more than a very modest contribution to our knowledge. Still, it is absolutely necessary to have even the elementary information we are able to furnish. Apart from our results I know of no work, as far as the insane are concerned, other than that of the Italian workers Pardo and Benigni, which, however, from the bacteriological standpoint is but scanty.

Our procedure in this investigation was as follows: A gramme of fæces was well shaken up in water with sterile shot in a sterile vessel, a suspension of 1 per cent. being thus obtained, from which decimal dilutions were made by transporting 10 c.c. from one vessel to the next, each vessel containing 90 c.c. of water before the addition. Tubes of broth, McConkey's medium, and litmus milk were inoculated from these vessels. The milk tubes were heated a sufficient time at 80° C. to destroy adult organisms, and placed in an anaerobic apparatus in the incubator. Gelatin and agar plates were poured from the higher dilutions, and heated gelatin plates—for the observation of spores—from the lower ones. Agar-fuchsin plates—for the study of colonies—were prepared from the lower dilutions. Examination of the tubes and plates afforded approximate information as to the total number of organisms present; according to the dilution in which they occurred in the former case, and by actual counting in the latter. Anaërobes of the bacillus enteritidis group were studied from the milk tubes. The highest dilution in which typical bacillus coli occurred was ascertained by separating colonies upon a gelatin slope from the higher dilutions of broth cultures, and inoculating upon suitable media, and observing the latter for typical bacillus coli reactions. Subsequently, and only in some cases, agglutination, opsonic, and complement-deviation tests were performed with typical bacilli coli colonies.

Our results are set out in the following tables (Tables V.–IX.), in comparison with the average results obtained by Houston[22] in normal human fæces. From Table V. it appears that 5 out of 10 cases of acute mania showed a larger amount of total organisms (and bacillus coli) than the normal average; of the acute melancholia cases only 4 out of 18 showed the same. But if, as there is ground for believing, the normal upper limit is not more than 100 millions, 9 out of 10 of the acute mania cases, and 10 out of 18 of the acute melancholia cases, are above the average normal figures. As regards streptococci, if 1,000,000 per gramme be regarded as the average, only 3 out of 10 acute mania and 5 out of 18 acute melancholia show higher numbers than the normal. Nearly all the streptococci in the cases examined were of the short-chained variety, in this respect agreeing with the normal. These streptococci, for some unknown reason, only appeared upon agar-fuchsin plate in 4 per cent. of the cases; in the remainder they were obtained direct from the broth-tubes originally inoculated.

The relative number of bacillus coli per gramme in the specimens examined is set out in Table VI. Whereas in the normal cases no less than 82 per cent. of the specimens showed no more than 10 million, no less than 90 per cent. of the acute mania and 55 per cent. of the acute melancholia cases showed more than 10 million. Table VII. shows the frequency of anaërobic organisms giving the

TABLE V.—*Number of B. Coli per gramme of Fæces (or total organisms: the figures being the same owing to the preponderance of B. coli).*

Normal (Houston).	Mania (10 cases).	Melancholia (18 cases).
100m. not 1000m. (probably 100m. more correct).	1. 10m. not 100m. 4. 100m. ,, 1000m. 2. 1000m. ,, 10,000m. 2. 10,000m. ,, 100,000m. 1. 100,000m. ,, 1,000,000m.	1. 100,000 not 1m. 1. 1m. ,, 10m. 6. 10m. ,, 100m. 6. 100m. ,, 1000m. 1. 1000m. ,, 10,000m. 3. 10,000m. ,, 100,000m.
Number of Streptococci per gramme of Fæces.		
At least 100,000 (probably an underestimate).	1. None found. 1. Only few observed, 4. At least 1000. 1. 100,000 not 1m. 1. 1m. ,, 10m. 1. 10m. ,, 100m. 1. 100m. ,, 1000m.	3. None found. 1. Few only. 2. At least 1000. 1. 10,000 not 100,000. 6. 100,000 ,, 1m. 2. 1m. ,, 10m. 1. 10m. ,, 100m. 2. 100m. ,, 1000m.

TABLE VI.—*Relative Number of B. Coli per gramme of Fæces in Samples Tested.*

—	Normal (Houston)	Mania.	Melancholia.
100,000m.		10%	
10,000m.	4%	20%	16·66%
1,000m.	6%	20%	5·55%
100m.	9%	40%	33·33%
10m.	16%	10%	33·33%
1m.	20%		5·55%
100,000	24%		5·55%
10,000...	14%		
1,000	8%		

TABLE VII.—*Number of Organisms in B. Enteritidis Group per gramme of Fæces Present as Spores.*

Normal (Houston).	Mania (10 cases).	Melancholia (18 cases).
100,000 not 1m.	1. 100 not 1000. 5. 1000 ,, 10,000. 2. 10,000 ,, 100,000. 2. 100,000 ,, 1m.	1. None found. 3. 100 not 1000. 9. 1000 ,, 10,000. 1. 10,000 ,, 100,000. 2. 100,000 ,, 1m. 1. 1m. ,, 10m. 1. 100m. ,, 1000m.

TABLE VIII.—*Number of Aerobic Spores per gramme of Fæces.*

Normal (Houston).	Mania (10 cases).	Melancholia (18 cases).
1000 not 10,000	4. Absent. 5. 100 not 1000. 1. 1000 ,, 10,000.	12. Absent. 4. 100 not 1000. 2. 1000 ,, 10,000

cultural, morphological, and staining reactions of bacillus enteritidis. In 8 out of 10 cases of mania and 13 out of 18 of melancholia the numbers estimated as present were below the average normal numbers. Table VIII. shows that aërobic spores were absent or in greatly reduced numbers, in both these forms of insanity. Table IX. shows that the bacillus coli present in both forms were typical in as high a percentage of cases as obtains for normal stools. The apparent exception furnished by the reaction of fluorescence in the cases of depression may with some likelihood be attributable to certain instances of faultily prepared media. The agar-fuchsin plates did not show other than the usual colonies present in normal stools. The bacillus coli found were usually acid-forming, only about 6 per cent. giving no red colouration. Typical bacillus coli (the cases were of mania or melancholia) were submitted to agglutination and opsonic index tests. The results in respect to agglutination were unlike those obtained in normal persons by Houston (a certain proportion giving a positive result) in that agglutination failed to occur, and with a low degree of dilution of the serum, in any case; but at any rate they resemble his in the point that the results in the controls were the same (in each case the organism used was the patient's). As regards the opsonic index ("homologous"), this was higher than the control-observation in seven instances, lower in four. Lastly, it is interesting to note that complement-deviation did not occur in these cases, either when the patient's serum or that of a control was used.

TABLE IX.—*Percentage of Cases in which B. Coli were Positive in the following Typical Reactions.*

—	Normal (Houston)	Excitement.	Depression.
Motility	89	100	100
Uniform turbidity, scum deposit on glucose broth	100	100	100
Acid and gas lit. glucose	100	100	100
Acid and gas lit. lactose	92	94	96
Fluorescence on N.R. agar...	93	95	82
Indol production	98	92	96
Acid and clot lit. milk...	92	95	97
Lit. nutrose	90	90	92
Solid (no liquefaction) gelatin ...	100	100	100

One may summarise such information as this small contribution to the subject of the bacteriology of the fæces in acute mania and melancholia affords thus: an increase was found in the total number of organisms and of bacillus coli in the great majority of the cases of mania, and in rather more than half the cases of melancholia; a diminution in the anaërobic organisms investigated in the great majority of the mania and the majority of the melancholia cases; a considerable diminution (or absence) of aërobic spores in both kinds; an absence of atypical bacillus coli and of unusual organisms in both kinds. Lastly, these cases afford no evidence that bacilli coli, even though present in abnormal quantity, exercise any influence in the conditions dealt with.

Johnson and I[20] examined the agglutinating power (upon bacillus coli) of the serum in dilutions of 1:100 (90 cases), 1:50 (3 cases), and 1:30 (7 cases) in 100 cases of insanity, of which 29 were cases of acute melancholia, 53 of acute mania, 9 of delusional insanity, 6 of general paralysis, 2 of alcoholic insanity, and 1 was a case of acute dementia. Of the 100, 50 showed agglutination described as "good" or "partial," though as many as 39 of them gave only "partial," and 50 showed no agglutination. Controls showed no agglutination in 84·6 per cent., the rest of the cases showing, with one exception, only partial agglutination. To present this observation concisely, 89 per cent. of the insane cases (the bulk of them composed of cases of melancholia and mania) gave either only partial agglutination or none at all. The organisms were foreign ones, and not the patient's own; single strains in 75 per cent., mixed strains in 25 per cent. These observations agree with those of White and myself in showing that in acute and recent insanity there are, in the rule, no agglutinins formed against bacillus coli.

In the following cases I examined the stools with a view to ascertaining whether there was a preponderance of Gram-positive organisms, the cases being all acute and recent, newly admitted. An emulsion was made in sterile distilled water of a portion the size of half a marble from the centre of the stool, 8–10 c.c. of this was centrifugalised for 10 minutes; one part of the supernatant turbid fluid was mixed with two parts of a 96 per cent. solution of alcohol, and the mixture centrifugalised for half an hour. The deposit, which consisted practically entirely of bacteria, was stained on cover-slips by Gram and counter-stained with carbol-fuchsin. Table X. gives the results:—

TABLE X.—*Showing the Number of Gram-positive Organisms in Fæces.*

Initials.	Mental disorder.	Stool examined.	Preponderating organisms according to stain.
B. P.	Mania.	First passed after admission.	Fuchsin-stained, greatly.
F. W. D.	Confusion (puerperal).	,,	,, ,,
L. L.	Melancholia.	,,	Fuchsin-stained, but Gram + very numerous.
E. D.	,,	Second stool.	,, ,,
L. M. B.	,,	First passed.	Fuchsin-stained, but Gram + few, and in groups.
M. C. H.	Mania (puerperal).	,,	,, ,,
C.	Mania.	,,	,, ,,
L. M.	,,	,,	Fuchsin-stained, greatly. Gram + numerous in groups.
C. W.	Melancholia.	First (after enema).	Fuchsin-stained, but Gram + considerable number.
C. B.	,,	First passed after admission.	,, ,,
H. W.	Mania.	,,	Fuchsin-stained, but Gram + fair number.
G. O.	Melancholia.	,,	Fuchsin-stained, but Gram + few.
S. T.	Acute confusion.	,,	Fuchsin-stained, but Gram + considerable number.
D. H.	Melancholia.	,,	Fuchsin-stained, but Gram + few.
D. L.	Adult, healthy working imbecile (as control).	—	Fuchsin-stained, but Gram + fair sprinkling.

Having regard to these results I was surprised to find that Pardo records the preponderance of Gram-fast organisms in cases of mania and melancholia in stools. He gives two plates, one showing the bacteria of the stool at the beginning, the other at the close of a maniacal attack; in the former violet-stained organisms preponderate, in the latter red-stained. His suggestion is that the flora in these

cases is that of protein-putrefaction, and that the proteolytic anaerobes—which are Gram-fast—are present in excess at the outset of the attack. The observations recorded above lend no support to Pardo's views, and the results recorded by Barton White and myself fail to afford evidence in favour of Pardo's statement that the putrefactive anaerobes are increased at the expense of bacillus coli and B. aërogenes, the normally-preponderating organisms; nor do they support his statement that streptococci are increased. In future work on the intestinal flora in acute and recent cases of insanity it seems to me particularly desirable that the anaërobes should be studied, as these are the organisms about which we know least in these conditions, for the sufficient reason that they are the most difficult to work with.

Anaërobic Organisms: Agglutination Test and Opsonic Index.

The chief obligatory anaërobes of the human intestine are commonly stated to be bacillus putrificus, bacillus aërogenes capsulatus (bacillus Welchii), and bacillus enteritidis sporogenes (Klein). In conjunction with Dr. Schölberg I carried out an investigation with a view to ascertaining the results of the agglutination test and to estimating the opsonic index, in respect to two of these anaërobes, bacillus putrificus and bacillus enteritidis sporogenes, in recent and newly-admitted cases of acute mania and acute melancholia. We worked with stock cultures of these organisms. Repeated efforts to obtain a pure culture from various sources of bacillus aërogenes capsulatus failed. Even in respect to the other two anaërobes the difficulties surrounding this work were considerable, for it was necessary to maintain them for a very long time in pure culture pending the admission of suitable cases of the forms of insanity (mania and melancholia) we investigated. Our results are here summarised. The agglutination test was done in the low dilution of 1 in 20. The opsonic index was estimated for each of the two organisms thus:—

I.	II.	III.
Control's serum	Patient's serum	Patient's serum.
,, leucocytes ...	,, leucocytes...	Control's leucocytes
Organism	Organism	Organism.

In none of the 22 and 25 cases respectively in which the agglutination test was carried out was there a positive result, and when a partial reaction was recorded it was shown by the control as well as by the patient and in equal amount. The opsonic index was estimated upon admission of the patient 18 times in the case of bacillus enteritidis; in 12 it was less, in 6 more than in the control. It was estimated on 22 occasions in the case of bacillus putrificus; in 15 it was less, in 5 more than in the control, in 2 the same. These results point in the same direction as those referred to below (respecting the opsonic index in the case of various common organisms), and merely indicate a lowered resistance in the majority of the patients. In addition to the usual control an observation was made in the above cases with a mixture designated above as No. III., in which the patient's leucocyte was replaced by the control's leucocyte, so that the mixture was heterologous. It is interesting to note that 15 times out of 19 in the case of bacillus enteritidis, and 16 times out of 22 in that of bacillus putrificus, the opsonic index was higher with the heterologous than the homologous mixture. Without indulging in speculation as to the relative rôle of the serum and the leucocytes in the process of ingestion of organisms by the latter, this observation would appear to indicate that the part played by the white cells is of greater importance than they are usually credited with. The observation has interested me considerably, as affording a possible basis for the treatment of toxic conditions by the injection of foreign leucocytes, a matter to which I refer in my next lecture.

Observations upon the opsonic index in respect of various common organisms in cases of insanity have been recorded by Shaw[24] and by Babington,[25] the former examining 15, the latter 52, cases of various kinds. The organisms tested were bacillus coli, staph. aureus, streptococcus fæcalis, bacillus paratyphi, microc. rheumaticus, and bacillus tuberculosis. Both these observers found that the index was on the average lower in the acute insane than in normal, healthy controls, and the former observed that the index varied more in the insane. The index was found by Babington to be lower especially with bacillus coli; and to rise to normal, or higher, in respect to the organisms as a whole, after recovery. These observations go to show that the insane, especially those suffering from acute forms of insanity, are more liable to infection than healthy normal persons. No doubt this was *a priori* probable, but evidence is, of course, necessary in such matters..

LEUCOCYTOSIS IN MENTAL DISORDERS.

The demonstration of leucocytosis in toxic conditions led in due course to the study of the white blood corpuscles in the psychoses, especially in those which *a priori* might be associated with such conditions. As regards the erythrocytes, all workers are agreed that, in respect to them, and to the amount of hæmoglobin present, there is nothing of special significance to record in the insanities; the numbers of the former and the percentage of the latter are merely reduced in proportion to the reduction in general health. In regard to the leucocytes in mental disorders, a considerable amount has been written and important deductions have been made. I first allude to those records which in my judgment are noteworthy, and subsequently to certain personal observations, and finally summarise.

Dementia Præcox.

The largest number of observations seems to have been made in respect of the mental states grouped under the heading of dementia præcox. Sandri,[26] an Italian observer, studied 32 typical cases, acute and recent, and 8 chronic cases, of many years' standing. The former he was fortunate enough to be able to examine in from ten days to three months from the commencement of the disease. In acute instances of the hebephrenic and paranoidal forms he found a moderate leucocytosis—up to about 10,800—and a slight increase in the neutrophiles at the expense of the lymphocytes. In acute cases of the katatonic form—to my mind the most striking of the varieties—Sandri found no leucocytosis, but a relative increase of the lymphocytes, especially the small kind, at the expense of the neutrophiles. These conditions, it will be remarked, are the exact reverse of those obtaining in the other two varieties of dementia præcox. Further, in the katatonic type the cell protoplasm and the nucleus showed various signs of degeneration, and myelocytes were numerous; in the other two forms the cells and their nuclei were commonly well preserved. Amongst the eight chronic cases only

those of the katatonic type showed changes of the same kind as in the acute cases. These observations, therefore, purport to draw a marked distinction between the katatonic and the other types. Graziani[27] does not find any distinction in the leucocytal counts in the three types of dementia præcox. Confirming the observations of Bruce and Peebles, which were in respect of the katatonic type, he describes a moderate leucocytosis with increase of the neutrophile percentage at the beginning of the malady. In such incomplete recovery as one finds in these cases, he agrees with the authors mentioned, that the neutrophile cells are maintained at a fair percentage (60 per cent.). With the supervention of dementia the total count and the proportion of neutrophiles both diminish, with proportional increase of the lymphocytes; with this statement other writers, such as Dide and Berkley, agree. Camus and Lhermitte[28] find a very moderate leucocytosis—up to 10,000 only—in dementia præcox, persistent throughout the malady, with a proportionate increase of lymphocytes. Heilemann,[29] coming to recent writers, is clear that there is a change in the cell-count in dementia præcox, although the observations of the various writers are, as he truly remarks, difficult to co-ordinate and interpret. They seem, on the whole, to agree that there is a lymphocytosis—not limited to katatonia, as Sandri states. In a table of 24 cases Heilemann shows that neutrophiles are low and lymphocytes and eosinophiles increased. He is unable to say whether there are differences in different forms of dementia præcox. Pförtner[30] (1912) finds a moderate leucocytosis with relative lymphocytosis, so that lymphocytes amount to 58–59 per cent., whilst neutrophiles are notably diminished. He finds no differences in the counts in different forms of the malady. He describes hypo-eosinophilia in 43 per cent. Acute exacerbation was accompanied by hyper-leucocytosis, with relative neutrophile increase, in two cases, which conditions subsided with the exacerbation—a picture very suggestive of the influence of a toxin. But very often important changes occurred in the relative proportion of the varieties of white cells without change in the clinical picture and *vice versâ*. Barnes[31] reports two similar cases to the above. A very important communication upon the blood-changes in dementia præcox appeared in 1912 by Lundvall,[32] based upon the systematic study of 15 cases covering the different phases of the disease in the same patient, observations being made daily, or every second day, for a long period. He finds that there are typical blood-changes, which he terms "blood crises," at periods marked by psychical and motor unrest. These consist in oligocythæmia and hyper-leucocytosis, characterised by increase in the neutrophiles. These crises appear earlier than the psychical changes. In the intervals there is a diminished total count with relative mononuclear increase. Lundvall's observations, taken with those of the last two writers, seem to me of particular importance as indicating a destruction of red blood corpuscles and a positive chemiotaxis—conditions which point to a bacterial invasion rather than to an endogenous toxæmia. Unfortunately, one rarely sees a case of dementia præcox in a mental hospital in the initial phase. In consulting practice, I am informed, such cases can be watched developing for very many months, but I can well understand that it is well-nigh impossible in such practice to make blood-examinations systematically and in connexion with exacerbations.

Summarising our present knowledge, it may be stated that in the earlier phases of dementia præcox there is a moderate increase in the total white cell count, with relative increase of the neutrophiles. Thereafter in marked exacerbations of the morbid processes these increases are more pronounced. The ordinary picture is that of a relative lymphocytosis. The progress towards dementia is characterised by a persistence of this, with a low total count; this appears to be the view held, but I would refer to a chart which follows as to this point. There is no sufficient evidence of differences—quantitative or qualitative—in the cell-counts in the different forms of dementia præcox, though in quite a recent communication Kulm and Purdum[33] confirm Sandri's statement as to the high proportion of lymphocytes in the katatonic variety. The need of more extensive observations, for comparative observations in respect of the different forms, for observations in the very early stages of the morbid process, is, I believe, greater in the disorders grouped under this heading than in other kinds of insanity. The physical condition of many cases of stupor and katatonia bears a resemblance to that found in myxœdema, in which disease there is also a relative lymphocytosis.

Insanity with Epilepsy.

Graziani finds what he describes as the characteristic formula of the toxic-infective state—viz., leucocytosis and polynucleosis, with hypo-eosinophilia at the time of seizures; the statement is not complete. Morselli and Pastore,[34] and also Campioni,[35] who paid attention solely to the eosinophiles, agree that there is a hypo-eosinophilia for a few days prior to the attack, which persists during it, the eosinophile ratio rising after it—conditions pointing to negative and positive chemiotaxis, according as toxin is present in quantity or is diminishing. These statements of the Italian observers, in respect to leucocytosis, polynucleosis, and eosinophilia, in relationship to the phases of the epileptic condition, are entirely borne out by the French observers Klippel and Feil[36] (leucocytosis, 20,000–22,000). The subsidence of leucocytosis and the rise in eosinophiles are comparable to what is seen in convalescence from acute infections. Nieuwenhuize[37] and Jödicke[38] find that there is usually no leucocytosis before a seizure, but the latter describes two cases in which there was a marked rise in the number of white cells a few days before such. Riebes[39] found in seven cases examined immediately before the seizure a polynuclear increase of 15 per cent. to 20 per cent., with corresponding diminution of lymphocytes. Between seizures he obtained discordant results. As to eosinophiles, he agrees with the authors cited. Bruce[40] found hyperleucocytosis during all stages, but most marked during and after seizures. Gorrieri[41] describes a more or less pronounced leucocytosis during and after seizures, in some instances evident a few minutes before the seizure; in the intervals the count is in general higher than normal, but considerable individual differences obtain. The summary seems justified, in respect to epilepsy with insanity, that there is a considerable degree of accord between observers, the results showing leucocytosis with hypo-eosinophilia in connexion with seizures, uncharacteristic conditions obtaining in the intervals; in other words, evidence of toxæmia, not acute, at the time of the seizures.

More observations are needed, especially during the premonitory period.

Mania—Melancholia.

Graziani finds a leucocytosis of moderate degree (12,000–16,000), with polynucleosis, at the commencement of the attack, and the like on relapse. The neutrophile count remains high in cases which last for months without improvement. At the close of the attack of ordinary duration the neutrophile count is low. A rise in the eosinophile count is of good omen; experience supports this, which is *a priori* probable. Bruce describes a high total count, with relative neutrophile increase, at the onset; these subside as the disease progresses, and perhaps a second minor increase accompanies symptoms of recovery. The persistence of this, with a normal percentage of neutrophiles, after recovery is a favourable sign. A fall in the neutrophile percentage without mental improvement is, as McDowall [43] has pointed out, an unfavourable sign. In unfavourable cases the leucocytal counts are variable, and lymphocytosis becomes apparent with the lapse of time. In subacute and chronic conditions lymphocytes predominate (Klippel and Léfas [45]).

To summarise, there is general agreement as to a leucocytosis at the beginning of an attack of acute mania or acute melancholia, and with increase of the neutrophiles; and the few who have studied the leucocytal count throughout the normal course of a favourable case would not dispute the accuracy of Bruce's statement concerning it. More evidence is required as to subacute and long-lasting cases, and as to the count at the stage when it is apparent that recovery is to take place. Whilst statements as to isolated occasional white cell counts in acute mania and melancholia are pretty frequent, it is remarkable how few have conducted inquiry in these conditions over long periods. This criticism applies to the cell-counts in the psychoses generally, but one would have thought an exception would have been made in cases of the particular kind just discussed, conveying strongly, as they do, the impression of toxic pathogenesis.

In puerperal insanity the leucocytal counts resemble those of acute mania. A record by Gorrieri [44] of the white cell count in cases of acute alcoholic insanity, recovering within three months, is interesting, because it is rare, and because it bears out the association of a polynuclear increase, accompanied by relative diminution of lpmphocytes, with a toxic process. The qualitative count became normal upon recovery, with rise in the proportion of eosinophiles.

States of Acute Confusion ("Amentia" of the Italians).

Graziani and Sandri agree in the main. There are the usual conditions which go with what appears clinically to be a toxic state—viz., leucocytosis (slight), polynuclear increase (not marked), hypo-eosinophilia. These pass away with decline of the illness and recovery. The case of mental disorder due to pellagra is of great interest from the comparative standpoint, when regard is had to the outcome of modern investigations as to its pathogenesis. Bardin,[45] in 14 uncomplicated cases, found lymphocytosis (affecting the small lymphocytes especially), with diminution of the polymorphs, this condition being especially marked in the chronic cases.

Dementia Paralytica.

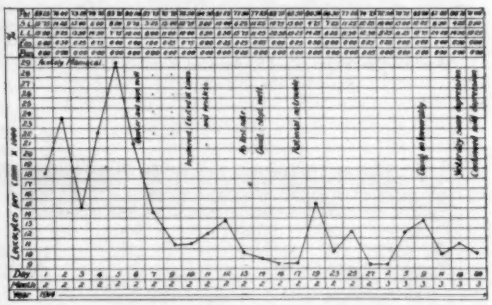
My experience is in accord with that of Klippel and Léfas, and Bruce and Peebles; in the first stage there is a moderate leucocytosis with relative neutrophile increase (75 per cent. to 80 per cent.); in the early second stage these conditions continue, but in the later second and in the third stages, whilst the moderate leucocytosis (up to about 11,000 cells per c.mm.) is maintained, the lymphocytes, small and large, are relatively increased at the expense of the neutrophiles, which fall to from 54 per cent. to 64 per cent. A relative polynucleosis, with frequently only slight increase in the total count, accompanies the febrile attacks of the later stages, and also the paralytic seizures. The illustration of this point and that of the leucocytal count in states of remission (which I have studied over long periods), and a final summary of the subject under notice, I must defer to my third lecture.

Charts Illustrative of Leucocyte Count.

I conclude this lecture by submitting the following few charts illustrative of the leucocytal count in certain recognised kinds of insanity. The number representing the total leucocytes is in each case the average of three total counts of 400 squares each. The percentages of the different kinds of leucocytes are based in each case on 400 consecutive leucocytes.

CASE 1A (Fig. 1).—Patient aged 27 years. Puerperal mania. Duration of disease on admission, one week. Observations (25) over a period of 1¾ months. Hyperleucocytosis during period of acute mania, with sudden fall on its

FIG. 1.



Puerperal mania. Case 1A, admitted Jan. 31st, 1914. The reduction necessitated by the size of some of the original drawings has made the lettering in some places difficult to follow, a remark which holds good for other of these charts. Under a low magnifying glass the figures are plain.

cessation. Moderate increase in total count thereafter. Hypo-eosinophilia throughout. (Patient not completely recovered on cessation of observations, but quite free from mania.) The high neutrophile percentage practically throughout is obvious, and indicative of a toxic process.

CASE 3 (Fig. 3).—Patient aged 21 years. Confusional insanity. Duration on admission, two weeks. Leucocytosis at outset, disappearing with cessation of the disorder. Polynuclear percentage well maintained at outset, but relative lymphocytosis towards and at close. Eosinophiles very low throughout.

CASE 4.—Patient aged 49 years. Subacute melancholia; agitation and confusion. Duration on admission, some months. Prone to relapse; previous attacks. Observations (27) over one year and two months. This is the case of a woman in mental hospitals three times and for a total period of nearly six years during the past seven years, so that she has remained comparatively well for a very brief period only during seven years. There is a variable total leucocytal count without correlation with clinical manifestations. No marked leucocytosis except when the condition at its worst—

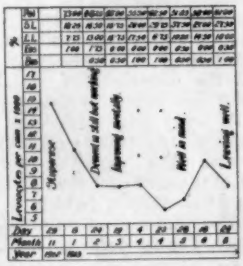
on reception. A relative lymphocytosis is the feature of the qualitative count. A low eosinophile count. The chart of incomplete recovery. (Fig. 4.)

CASE 5.—Patient aged 50 years. Acute melancholia on admission, thereafter chiefly subacute. Duration on admission some months. Observations (23) over nearly one year. Total count shows instability, with leucocytosis in latter half of observation-period, in conformity with the unsettled and relapsing clinical condition. Mostly a relative lymphocytosis; rarely a normal proportion of polynuclears, not maintained. Hypo-eosinophilia. Unfavourable prognosis for complete recovery. (Fig. 5.)

CASE 7.—Patient aged 45 years. Mania, first acute, later chronic. Duration on admission two to three weeks. Observations (28) over a period of 1 year 4 months. Marked leucocytosis on two occasions, early, otherwise moderate, with much variation of total count. Towards close, diminishing total count, but no fall in polynuclear percentage. Deficient polynuclear reaction frequent in course of the case (unfavourable sign). Eosinophile count very low or absent. (Fig. 7.)

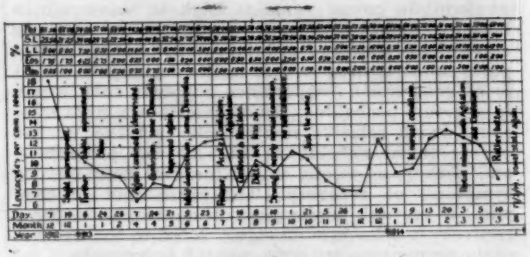
CASE 8.—Patient aged 19 years. Acute mania. Duration on admission, one month. Observations (55) over a period of seven months. Marked irregularity of total count, with mainly a moderate leucocytosis. Polynuclear

FIG. 3.



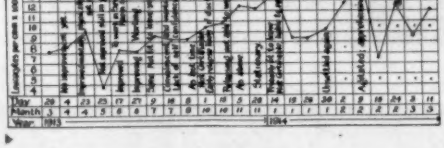
Confusional condition. Case 3, admitted Nov. 27th, 1912. (A certain number of the charts not appearing in this issue of the lectures, the numbering is not consecutive.)

FIG. 4.



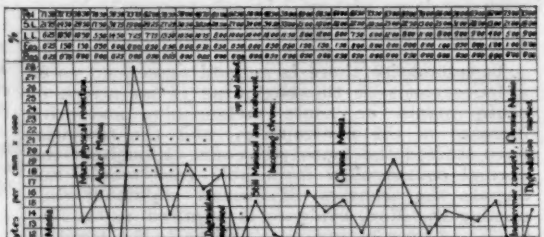
Subacute melancholia. Case 4, admitted Dec. 5th, 1912.

FIG. 5.



Acute melancholia. Case 5, admitted March 3rd, 1913.

FIG. 7.

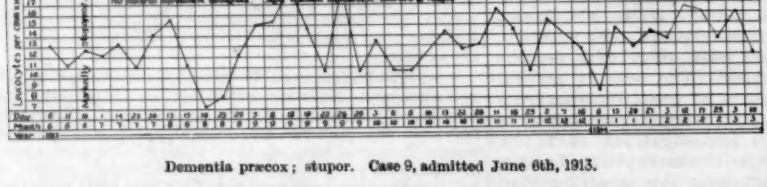


Acute mania. Case 7, admitted Nov. 11th, 1912.

FIG. 8.

Typical acute mania. Case 8, admitted Sept. 9th, 1913.

FIG. 9.



Dementia præcox; stupor. Case 9, admitted June 6th, 1913.

percentage mostly well maintained, and consistently so when nearing recovery. Low eosinophile count. (Fig. 8)

CASE 9.—Patient aged 23 years. Dementia præcox (stupor). Duration before admission, two months. Observations (40) over period of nine months, moderate leucocytosis throughout; irregular count. Polynuclear percentage well maintained or increased during first half of the period, but in second half a drop in the polynuclear percentage is frequent, especially as case progresses. Very low eosinophile counts throughout. (Fig. 9.)

Observations in 6 cases of epileptic insanity—30 pre- and 39 inter-paroxysmal.—Doubtless it is desirable to make numerous and regular observations in the same patient, but the frequency with which fits occur in cases available for observation is often not sufficient to allow of the collection of results within the time at disposal. Taking the series of observations made in these six patients I find that of the 13 highest counts 11 are preparoxysmal; and of the 15 lowest, 12 are interparoxysmal. A moderate leucocytosis is, on the whole, the prevailing condition throughout. No correlation is to be made out between varieties of cell and phases of the disease. Eosinophiles are low.

The hypo-eosinophilia noticeable in all these charts, illustrating different kinds of insanity, is noteworthy.

Observations on three typical cases of the chronic phase of dementia præcox in adolescents free from other disease.—All were of a few years' standing. Twenty-seven observations in all. The total count can only be called normal on five or six occasions; otherwise a leucocytosis (or a lymphocytosis) with considerable variations, no clinical change accompanying them. The neutrophile percentage is below the normal figure on 14 out of 27 occasions, there being an increase in the percentage of lymphocytes (the large mononuclears chiefly). In five instances the eosinophile percentage is increased, and in six the basophile percentage is at the upper normal limit. These observations are perhaps of interest because records in the chronic cases of dementia præcox are rare.

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NOTE ON THE WOUNDS OF THE SOFT PARTS PRODUCED BY THE MODERN BULLET.

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THE time seems to have arrived when an opinion may reasonably be expressed as to the so-called "humane" character of the pointed bullets employed in the present war. Before proceeding to this consideration the protest may be reiterated against the "pure sentiment" which has given rise to the employment of the word "humane" and led to international recrimination between parties who, while advocating the employment of a "humane bullet," do not hesitate to place their main hopes on the use of projectiles portions of which may cut off a head, an arm, or a leg, or lay open the major part of one or more of the great body cavities.

Characters of the Wounds.

The main characteristics of the wound produced by the modern pointed bullet depend on two factors—initial velocity of flight and instability of flight in the long axis of the projectile. Of these two factors the former is of comparatively small importance except in the increased capacity of the bullet to produce extensive comminution of the bones when they are struck at a right angle. In the instability of flight and the tendency of the bullet to revolve around a transverse axis, however, the travelling bullet is endowed with a capacity of wounding the soft parts to a degree which no form of expanding or soft-nosed bullet has exhibited before. A dum-dum or a soft-nosed bullet traversing the soft parts alone seldom acquires any deformation or increased wounding power, and, as far as my own experience of the dangers of the soft-nosed Mauser or Mannlicher bullet occasionally used by the Boers in the South African campaign went, I came to the conclusion that they were practically negligible.

On reviewing a long series of the bullet wounds observed during the last two months of the present campaign I have become more and more impressed with the gravity of a considerable proportion of the rifle and machine-gun wounds, which seems to me to correspond much more nearly with the experimental results obtained by von Fessler and others than with the reports furnished by many of the surgeons working during the Balkan campaign, the majority of whom regarded the wounding power of the pointed bullet to be very similar to that of the older dome or ogival tipped bullets of small calibre. That the pointed bullet causes small, clean apertures of entry and exit when it strikes fairly at right angles, even when travelling at high degrees of velocity, there is no doubt. Such wounds are numerous, although in my experience the cases in which occurs perforation or division of small narrow structures such as the peripheral nerves and arteries are not so common as was the case in wounds produced by the Mauser or Lee-Metford bullet.[1] Neither arterial hæmatomata nor aneurysmal varices have been frequently seen in the more serious cases reserved for treatment in France, although I am not in a position to know what may have been observed amongst the large number of less severe wounds transferred at once to England. The same remark

[1] THE LANCET, Dec. 20th, 1913, p. 1743.

applies to isolated injuries of individual peripheral nerves, while the larger area afforded by the brachial plexus has resulted in many paralysed arms complicating the very common wound from the base of the neck to the shoulder region, the result of the attitude so often assumed in the fighting during this campaign.

Allowing the capacity of the pointed bullet to produce the small apertures of entry and exit and the narrow intervening canal made by the older bullet, yet it is clear that as a cleanly perforating instrument it needs to strike with extreme accuracy and precision, and if this be not the case wounds of a vastly different character result. A slight inaccuracy of impact causing only an unimportant increase (or none at all) of the aperture of entry, may result in the production of an "explosive" exit aperture of the extreme type when no bone has been touched and the resistance of the soft parts of the body is alone met with.

Instability of Flight of the Pointed Bullet.

That these wounds are not caused by bullets deformed by ricochet is obvious from the characters of the aperture of entry. On this point it may be added that seriously deformed bullets are seldom extracted, which may depend on the fact that in the recent fighting a large number of the deflected bullets have struck either trees or the soft earth at the margin of the trenches. The more serious ricochets, those from the walls of houses, have been far less abundant. Again, in any case the general outline of the bullet renders it more liable to deflection than to serious deformation unless it meets the opposing object at a very narrow angle.

The ease with which the pointed bullet may be deflected cannot be more aptly illustrated than by examining a number of cases of injury to the head and observing the very great preponderance of gutter wounds over that of tracks traversing the skull, which preponderance (if it existed) was certainly far smaller with the older forms of bullet of small calibre.

The serious nature of the wounds limited to the soft parts can only be attributed to the fact that the instability of flight of the bullet in its long axis is so great that, unless impact with the body takes place by almost the exact tip, a rapid revolution of the bullet on its transverse axis occurs, so that the only slightly diminished force is exerted by the whole lateral area of the bullet on the tissues in the distal portion of the canal and the aperture of exit. If the "remaining velocity" is great this half turn only is probably made; if less the revolution may be complete or even repeated; if the bullet is nearly "spent" it is often retained in a reversed position. The latter is often the case with retained bullets, or their position may be vertical to the course of the wound. The soldiers assert that the enemy sometimes draw out the bullet and reverse its position before firing the cartridge, but even if this be the case it is difficult to believe either that the bullet would travel properly, or that it could account for the many cases of reversed retained bullets met with.

Illustrative Examples.

Evidence of this instability of flight is offered by the appearance of some of the entry wounds; thus rarely wounds are seen of the same outline as the lateral surface of the bullet. On the other hand, the oval wound or the partial gutter leading to a penetrating wound often observed in the case of oblique impact in the case of the older bullets is rare and never well marked. The aperture of entry is rather only slightly enlarged, with merely slight bevelling in one half of its circumference and undercutting at the other. The aperture of exit, on the other hand, is very large, in the case of wounds of the soft parts often oval, and less commonly stellate than when the bones have been implicated. In place of a small tag of subcutaneous tissue in the opening a mass of the brush-like ends of torn muscle and other soft tissues protrudes. Such wounds are seen in the extremities without any evidence of implication of the bones. Very striking instances are seen in the abdomen, thus, (1) a normal small entry wound in the right loin, with a vertically oval wound of the anterior abdominal wall four inches in length, the floor of which was formed by the ascending colon, from which fæces were escaping; (2) a normal entry wound over the ascending colon with an oval exit in the right loin, 3 inches by 2, from which urine escaped and extravasated under the skin of the back; (3) a similar wound entering over the descending colon, with exit in the left loin (in this instance the main urinary extravasation followed the line of the ureter into the pelvis); and (4) entry in the anterior abdominal wall, exit in the left loin, with protrusion of a piece of omentum 6 inches long.

Wounds implicating the thorax scarcely come into the same category, since the presence of a rib at the distal end of the track offers a bony resistance, yet the large valvular openings allowing the free exit of blood and ingress of air which are so often seen were certainly rare in the case of the older bullets.

The chief novelty of the last weeks has been the arrival of men wounded by the modern "hand grenade," which, however, appears to cause more damage to the trench than its occupants.

NOTE ON A FATAL AND EXCEPTIONALLY INTENSE INFECTION WITH MALARIA (P. FALCIPARUM).

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THE case of malarial fever, a few notes on which are given below, occurred at Sekondi, an important seaport of the Gold Coast Colony, West Africa, and the terminus of the railway which runs northwards into Ashanti as far as Coomassie. Mosquitoes are said to be very troublesome at Sekondi. Simpson (1914)[1] records that on his visit he caught Culex invidiosus, C. rima, Ochlerotatus domesticus, and O. irritans; and states that Stegomyia fasciata was by no means uncommon. His list is not, of course, exclusive, and no doubt other species also occur. The history of the case was similar to that which so often precedes an attack of blackwater fever, and included the following factors: an exacting life, bad quarters, exposure to mosquito bites, repeated attacks of malarial fever, and negligence in the taking of quinine as a prophylactic. I am indebted to Dr. E. W. Graham, senior medical officer, West African Medical Staff, in whose practice the case occurred, for the following notes.

The patient, who was 38 years of age, was employed as a driver on the railway between Sekondi and Dunkwa, and was accustomed to sleep alternate nights at these two places. At the time of his last illness he was in the fourth month of his first tour in West Africa, but he had previously been

for five years in India. His quarters in Sekondi were insanitary and infested by mosquitoes, and he stated that he had neglected to take quinine as a prophylactic for some time previous to his admission. On July 15th, 1914, he was admitted to the Sekondi hospital suffering from subtertian malaria. The infection was a slight one, and he was discharged five days later. On August 3rd he was readmitted. On this occasion he was slightly delirious, and his blood showed a heavy infection with quartan and subtertian malaria parasites. As the result of intramuscular injections of quinine he made a good recovery, and was discharged on August 10th with instructions to continue taking quinine, a precaution which, unfortunately, he failed to carry out.

His last illness commenced on August 30th. At mid-day, when he was first seen, he was slightly jaundiced, and looked very ill. His temperature was 103° F., and his pulse 120. He had profuse vomiting. On admission to hospital, at about 2 o'clock, his temperature was 101°. The blood films referred to below were taken at this time. The next morning, at 6 o'clock his temperature was 97·6°, pulse 84, and he looked much better. His urine was normal, his heart sounds a little hesitating, his liver normal, and his spleen only very slightly enlarged. His temperature began to rise again at 2 P.M., and reached its highest point, 104°, at 5 P.M. The patient, however, became comatose, and in spite of every effort died at 6.50 A.M. on Sept. 1st.

Two blood films, the one a thick dehæmoglobinised film and the other a thin film, were kindly sent to the laboratory at Accra by Dr. Graham. The films had been made from the patient's blood on August 30th at 2 P.M., at a time when his temperature was 101°. On examination the thick film was found to consist of a compact mass of malaria parasites. In the thin film, at first glance, as Dr. Graham himself wrote, "two out of every three red blood corpuscles appeared to be infected, in many cases with two or three parasites." One or two segmenting forms of Plasmodium malariæ were found in the film, but with these exceptions practically all the parasites were young ring forms of Plasmodium falciparum. They varied in size from minute bodies with almost solid protoplasm to well-developed rings with a large central vacuole, and not infrequently two widely separated chromatin dots. Very many of the parasites were situated at the extreme periphery of the corpuscles, their chromatin masses projecting out beyond the margin of the cells, and their cytoplasm forming small arcs of the circumferences. It was impossible to determine whether these parasities were really intracellular or not. The appearance of the film certainly suggested that there might be as many parasites present as erythrocytes; but naturally enough, on more careful examination, this was found to be an over-estimate. 2000 red corpuscles, taken as they came, were counted, and the presence or absence of parasites in each noted. The result is given in Table I. Parasites were present in 47·65 per cent. of the red corpuscles; a single parasite in 29·7 per cent., 2 parasites in 13·55 per cent., 3 in 3·5 per cent., and 4 in 0·7 per cent. Three of the 2000 red corpuscles contained 5 parasites apiece, and 1 contained 6. There were therefore 1423 parasites in the 2000 red corpuscles counted.

TABLE I.—*The Distribution of 2000 Red Corpuscles according to the Number of Parasites Invading them.*

—	Number of red corpuscles counted.	Percentage.	Total number of parasites in the red cells of each class.
Uninfected	1047	52·35	0
With 1 parasite ...	594	29·70	594
„ 2 parasites ...	271	13·55	542
„ 3 „ ...	70	3·50	210
„ 4 „ ...	14	0·70	56
„ 5 „ ...	3	0·15	15
„ 6 „ ...	1	0·05	6
Totals	2000	100·00	1423

In his "Prevention of Malaria," under the heading "The Maximum Number of Parasites," Ross (1910)[2] states: "In Mauritius we found in a fatal case 12/100 of the hæmatids infected." Several authors record 30/100, and Rogers (1908, p. 222)[3] mentions a fatal case "with more parasites than corpuscles"; and Deeks and James (1911)[4] recorded a case, No. 204 of their series, in which "almost every corpuscle appeared to be infected" with tertian parasites. The present case is therefore one of exceptional severity, and if for no other reason would perhaps be of interest on this account. There were, however, other points in connexion with it of equal or greater importance.

It is, I believe, very rarely that unquestionably free parasites have been described in the peripheral blood in malaria. Forms "applied" to the corpuscles are not uncommon, but parasites actually separated from the cells are rare. In this case, however, in addition to the 700 odd intracellular parasites per 1000 red corpuscles, a considerable number of extracellular ones were found also. As they were not evenly distributed over the film, and as a good many parasites were found lying on the extreme margins of the corpuscles about which it was impossible to decide whether they were really intracellular or merely attached to the surface of the corpuscles, it was impossible to determine their percentage accurately. Many of them appeared in the stained film as merozoite-like bodies, and possibly they were merozoites which, in consequence of the intensity of the infection, had not succeeded in penetrating corpuscles. Others were definitely ring-shaped, and like the intracellular parasites not infrequently possessed two chromatin masses. As parasites were also found which appeared to be half inside and half outside corpuscles, it is possible that these free forms had either escaped from, or been squeezed out of, the corpuscles. A natural corollary to the occurrence of these free forms in the plasma was perhaps the fact that polymorphonuclear leucocytes were relatively numerous, and were found to have ingested large numbers of parasites.

A differential count, based on the enumeration of 1000 leucocytes, showed that 58 per cent. were polymorphonuclear cells, 31·5 per cent. large mononuclear or transitional cells, and only 10·1 per cent. lymphocytes. (See Table II.) The low percentage of lymphocytes is probably to be accounted for by the unusual degree of polymorphonuclear leucocytosis, and this, as I have suggested above, may have been evoked in an attempt to eliminate the free parasites by phagocytosis. For, according to other observers, in cases of malaria in which the large mononuclear and transitional forms constituted about the same percentage of the leucocytes as they did in this case, the polymorphonuclear cells were considerably less numerous.

TABLE II.—*Differential Leucocyte Count.*

Type of leucocyte.	
Polymorphonuclear	58·0 per cent.
Large mononuclear and transitional ...	31·5 „
Lymphocyte	10·1 „
Eosinophile	0·4 „
Total	100·0 „

Stephens and Christophers (1908),[5] for example, give the following differential count: small mononuclear, 18·1 per cent.; large mononuclear and transitional, 31·4 per cent.; polynuclear, 50·2 per cent.; and eosinophile, 0·4 per cent. An increase in the polymorphonuclear cells in this instance would, if the percentage of large mononuclear leucocytes were assumed to remain constant, bring the differential count into almost exact correspondence with that found in the case here recorded.

Phagocytosis of the malaria parasites had indeed taken place to a remarkable degree. 200 polymorphonuclear leucocytes and 200 large mononuclear or transitional leucocytes, taken as they came, were counted and examined for pigment and ingested parasites. (See Table III.) Ingested

TABLE III.—*Showing the Percentage of Leucocytes of the Polymorphonuclear and Large Mononuclear Types containing Ingested Parasites and Pigment.*

	Polymorphonuclear leucocytes.		Large mononuclear and transitional leucocytes.	
	Number of leucocytes counted.	Percentage.	Number of leucocytes counted.	Percentage.
Neither ingested parasites nor pigment present	66	33·0	103	51·5
Ingested parasites only	82	41·0	40	20·0
Pigment only...	7	3·5	31	15·5
Both ingested parasites and pigment present	45	22·5	26	13·0
Totals	200	100·0	200	100·0

parasites were found to be present in 63·5 per cent. of the polymorphonuclear, and in 33 per cent. of the large mononuclear or transitional cells. In the large mononuclear and transitional leucocytes they were always few in number, generally only one or two; but many of the polymorphonuclear leucocytes were crowded with them. It is noteworthy that in this case pigmented polymorphonuclear leucocytes (26 per cent.) were almost as common as pigmented mononuclear leucocytes (28·5 per cent.), which are generally considered to be pathognomonic of malarial infection; although to say that they are absolutely so is not strictly correct, since pigment may occur in the large mononuclear cells in other conditions, as, for example, in trypanosome infections as the result of auto-erythrophagocytosis.[6]

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Accra, Gold Coast Colony.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—At an extraordinary meeting of the Royal College of Physicians on Dec. 3rd Licences to practise were conferred upon the following three ladies who have previously passed the examinations and have now complied with the by-laws:—Mabel Kate Bishopp, Hilda Grace Johnson, and Mary Woods, Royal Free Hospital.

INSOMNIA AND SUICIDE.

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FOR a long time past newspaper reports of suicide, associated with insomnia, have attracted my attention. Probably if all the cases in all the papers were collected we should find that annually a very great wastage of human life from this cause alone goes on which might to a great extent be prevented. But we must also bear in mind the thousands of sufferers from insomnia who struggle on, and who do not yield to the temptation to end a miserable existence.

Turning to the report of the meeting of the British Medical Association at Brighton in 1913, I find insomnia the subject of discussion in the Section of Neurology. The opening address, by Sir George Savage, seems to suggest his dissatisfaction with the present knowledge and treatment of insomnia, for he closes his remarks with the words: "Recognising the emptiness of my paper, I leave it for you to fill up." He was followed by Dr. Butter Stoddart, and the discussion was carried on by Dr. Constance Long (London), Dr. Robert Armstrong-Jones (Claybury), Dr. Jamieson (Melbourne), and others. The various kinds of treatment discussed were: sedatives and hypnotic drugs, travel and change scene and surroundings, alcohol in some instances, hydrotherapy, hypnotism and suggestion; and words of warning were also used as to the dangers incident to some of these methods of treatment—for instance, the acquirement of the drug habit and alcoholism. I could find no mention even of error of refraction, and yet, as a result of a long experience, I firmly believe this to be the most constant and most powerful predisposing cause of insomnia, and the careful and skilful correction of it the most reliable weapon we possess in overcoming this malady. No danger attends it, and it does not interfere with any other treatment should such be required.

I fully appreciate the action of exciting causes, such as influenza, shock, worry, prolonged nursing, financial stress, &c., but I feel that these by themselves would not be so harmful were it not that the nervous system had been previously severely taxed by the constant strain induced by slight refractive error. My object is to bring home to those medical men to whom the sufferers from insomnia apply for relief, and especially to those who have not hitherto relied much upon the ophthalmic surgeon for help in these cases, the importance of the correction of refractive errors. To do this I think it will be of more practical utility to relate some of my experiences, egotistical though this may seem, and to illustrate some of the points by cases which have occurred in my own practice, rather than to rake up isolated published cases or to refer to the many papers which have from time to time appeared, and have probably already been read and digested.

For more than 20 years my attention has been especially devoted to the consideration of the influence that slight refractive errors have in causing many of the functional nerve troubles so prevalent in these days. Amongst these insomnia has naturally had a prominent place. In my student days we were taught that slight errors of refraction, anything below one dioptre were of no consequence, and might be ignored. From a purely visual point of view this was true, but as time went

on it was observed that these slight errors, although not causing any visual defect, are of great importance in that they give rise to sundry neuroses. For a long time, and even now, the view that the correction of slight refractive errors might be a cure for many functional nerve troubles has been scoffed at and ridiculed, but undoubtedly a change is gradually taking place in this respect. Especially should these slight degrees never be ignored in any case of insomnia, and I think it will be found that some error is nearly always present in those cases not associated with organic disease, such as tumour, kidney troubles, and the like, or with persistent pain from any cause. Insomnia is not usually the only symptom, but is generally associated with attacks of great depression, and often with giddiness or headaches.

It seems unnecessary to quote a number of cases of suicide which I have seen reported in connexion with this subject, for there must be few medical men who have not been more or less brought into contact with such cases, and none who have not frequently read of them. I should like, however, to mention just two cases associated with refractive error which made a great impression on me at the time. The first was that of a gentleman who for some years had suffered from attacks of severe headache and depression, whom I saw on two occasions at an interval of five years. Each time I urged him to wear glasses constantly, but in spite of my appeals to his reason and common-sense he persistently refused to wear them except for reading. Some years later his self-inflicted death was reported, and he had left a letter in which was the passage: "I have fought my nerves for years, but can do so no longer."

Some years ago a pretty little girl, aged 13 years, came to me with her mother, for whom I had prescribed glasses. Very slight drooping of one eyelid, together with a highly strung nervous and shy manner, suggested to me that she had inherited her mother's defect—astigmatism—and on examination I found that this was so, and advised glasses. In this case, too, the mother refused to have "such a child" put into spectacles. I pointed out the possible ill-effects that might arise, but, unfortunately, she decided against my suggestion. When about 19 or 20 years of age the daughter developed symptoms of neurasthenia, and for four years was treated by various methods until finally a "rest cure" was proposed, and she was taken to a nursing home for this purpose. A few days later, in the absence of the nurse, she had destroyed that young life, out of which all brightness and joy had gone.

I will now turn to the brighter side of my paper, and give a few illustrations of what can be done for the relief of insomnia, and also of some of the difficulties that have to be surmounted, particularly the scepticism of the patient as to the possibility of glasses being of use for such a purpose, especially if the sight is good or an oculist has already been seen.

The writer of the following letter was with difficulty persuaded by her doctor to consult me, for she could not believe that her eyes were responsible for the insomnia from which she had been so long a sufferer, as she had seen an oculist, and her glasses were quite satisfactory, so far as she knew, and she could see quite well with them. Fortunately for her, the doctor insisted, and she came. I modified her reading glasses, and ordered some for constant use. Three months later she wrote: "I am sleeping wonderfully better since you saw me in May."

The following was a case of very long standing, but I never despair of relieving any case of insomnia if the patient will carry out my instructions to the letter. He writes:—

When you stated so confidently that you could cure my insomnia and depression I could not believe it, for I had suffered from these attacks for more than 20 years. They came on at intervals, and lasted for several weeks, and had increased in severity in recent years. While they lasted I felt incapable of transacting any business satisfactorily, *and life did not seem worth living.* Since adopting your remedy I have been perfectly free from any symptoms of this trouble.

A clergyman had suffered for nearly two years from spells of insomnia, accompanied by frequent attacks of palpitation, and a great feeling of "nervousness." The doctor who sent him to me diagnosed these conditions as due to eyestrain, which proved to be the case, although he would have passed the visual test as "practically normal." He reported subsequently:—"The effect of the glasses has been decidedly good. 1. The palpitation has passed away. 2. The nerves are quieter, and normal sleep has returned. You have a most grateful patient, I assure you."

What a number of our own professional brethren have perished as the result of insomnia and nervous breakdown, and the verdict has been suicide, or, more mercifully, "misadventure." I have seen many who have been very near such an end, and patients have often told me afterwards how greatly they had been tempted. I remember very vividly the case of a comparatively young doctor, about 38 years of age; and his professional brother, who was attending him, came to talk over the details before sending him to me, and expressed his anxiety as to suicide or insanity. He had been taking drugs for his insomnia for some time, and his depression was extreme. It can well be imagined with what pleasure I read the letter which came from him about six months later. I may say that he had had glasses previously to my seeing him, but had not experienced much need of them, and had used them very little. He writes:—

I am at present doing double duty, as my colleague is away through illness, so you may guess I am feeling very fit to be able to cope with this difficulty. I am glad to tell you that the giddiness, insomnia, and other nervous symptoms have all disappeared, and I am now feeling bright and energetic—in fact, as well as I have ever felt in my life. Of course, I wear religiously the glasses you ordered for me. Do you remember how I complained of most acute nausea and heart distress when travelling by rail? Well, that has also completely gone. I shall always feel grateful to you for what your skilled advice and sympathetic treatment have done for me, and I can conscientiously say that I can attribute my improvement to nothing else.

By treating what I look upon as the initial cause of insomnia or nervous breakdown, we are able to anticipate more permanent results than are usually obtained from the use of drugs and other forms of treatment, which are in many cases only palliative and temporary in their effects. This point is well illustrated in a case reported in a former paper of mine published in THE LANCET[1] nine years ago on Slight Errors of Refraction and their Influence on the Nervous System, and I will briefly refer to it again. The patient, a minister, had suffered for two years from severe headaches, insomnia, and giddiness, resulting finally in a complete nervous breakdown. He had given up all hope of ever being any

[1] THE LANCET, June 10th, 1905, p. 1573.

better, and he told me later that he dared not sleep in an upstairs room, and had given up shaving as he was afraid he might yield to the temptation to commit suicide. The doctor had the usual difficulty in getting him to come to me, as he had seen an oculist in London, and was using glasses with which he could see quite well. I changed his glasses for reading, and gave him glasses for constant use, and he wrote me six months later: "After ten weeks of hard and anxious work I am still holding my own. Refreshing sleep has become habitual, after a long period of insomnia, during which I was quite a wreck, as you know, and with sleep strength began to return, and life, which had been a burden, is now a delight." This patient has been to see me recently and tells me he has been actively engaged in his work since his visits to me in 1903.

Another very interesting case occurred in my practice a few years ago, but in this instance giddiness was a more pronounced symptom than insomnia. A lady had suffered from severe attacks of giddiness for several years, becoming so giddy that she was afraid to go out of doors unattended, frequently had to leave the breakfast table, and if she went to church invariably had to come out. She had sought advice from many physicians in Belfast, Dublin, and London, but without relief, and ultimately came to Harrogate. She was somewhat taken aback when the doctor whom she consulted here after a careful examination and a patient hearing of her history advised her to consult me. She at once said she had already seen the first oculists of the day, and quoted the names of six whom she had consulted. Probably most doctors would have accepted that statement as final, and given up all idea of further treatment in that direction. Fortunately for the patient that did not happen, and I saw her. I gave her glasses, both for distance and reading, and she soon began to improve, and wrote me 12 months later:—

> You will be pleased to hear that I have had practically no vertigo, have had no prolonged attacks since with you last July, and even the swift little turns have not troubled me now for some months. I never have to leave the table, and, indeed, may say that I am practically free, as I go on the roads freely and never feel distressed, so if that only continues I shall be the happy woman I am at present.

Does this case not show that it is absolutely necessary, firstly, that the physician should be aware of slight refractory error as an initial cause of insomnia, and, secondly, that the ophthalmic surgeon to whom he may send the patient should also be aware of it, and should possess the combination of care, perseverance, and skill necessary for the detection of very slight errors, accuracy in estimating the amount of such error, and tact and judgment in getting his treatment effectually carried out? Failure resulted in this case up to a certain point from a lack of this combination, but in the end complete success was achieved by the confident persistence of her Harrogate doctor, together with the pair of spectacles she obtained in consequence of it.

The writing of my paper was at this point interrupted, and in the short interval of 24 hours before resuming it rather striking coincidences have taken place. In the first place, in my daily paper another of those painful suicides is related; the rector of a parish having written the following letter, was found dead in a pool with a bullet wound in the head: "Another sleepless night; no real sleep for weeks. Oh, my poor brain, I cannot bear the lengthy, dark hours of the night; dazed, confused, I know not what I am doing. God have mercy on me, and raise up friends to my poor wife." Do not these cases cry out to us for more strenuous efforts?

As illustrating the prevalence of it, three patients have in that short time sought my advice for insomnia, one from Ipswich, one from Dublin, and one from my own town, Harrogate. The last, after trying various methods of treatment for nearly two years, tells me that it has at last been suggested by a specialist in London that his eyes might be the cause of his trouble; and that undoubtedly is the case.

Thus far I have given a few illustrations of cases of long standing and of severe type, and if it is possible to give complete relief in such, may we not entertain great hopes for the future? Is it not also an inducement to those who have hitherto been sceptical to test the matter thoroughly for themselves, and gradually to acquire that experience which is so necessary for the surmounting of those many difficulties one meets with in obtaining satisfactory results? The natural inference, too, is that if cases of this kind were seen in the early stage there would be a ready response to treatment; and, if so, what a contrast financially alone to those of limited means—a pair of spectacles *versus* a sea voyage, three or four months in Switzerland or elsewhere, six or seven weeks in a home for so-called "rest cure," and so forth.

A few letters will suffice to demonstrate this ready response to treatment. A doctor who was perilously near a nervous breakdown was enabled to continue his work and wrote:—

> I have persevered continuously with the glasses you prescribed for me in May last with the greatest satisfaction. There is distinct improvement in the tone of my general health, and the depression, irritability, and insomnia are relegated to the memories of the past. I could not have anticipated such good results, and tender my sincerest thanks.

The following case of nervous breakdown from insomnia and dyspepsia occurred in India. The patient was sent home to consult a certain physician in London, and ultimately came for a course of treatment to Harrogate. After being here six weeks he was in despair as he had derived no benefit. A friend of his then suggested that he should see me. He was much surprised, as he had particularly good vision, but came nevertheless, and the constant use of glasses soon helped him. He wrote from India:—

> It is now nearly six months since I was fortunate enough to come under your care, and I am writing to let you know how I have fared. From the time I started to wear my glasses I began to feel an improvement in my general health, so much so that before I left home in December last I was feeling much better in every respect, and since my arrival in India I have continued to mend until now I feel more or less like my former normal self—in fact, an altogether different man, both eating and sleeping well, whilst my indigestion is almost a thing of the past.

A similar case, a doctor of music, writes: "I am glad to tell you I am in really good health again. I sleep well and my nervous system is stronger than it has been for a long time. All my work, both public and private, has been quite satisfactory and I can now enjoy life."

Before closing this paper may I venture on just one suggestion as to the great prevalence of functional nerve troubles and the cause thereof? I have often heard two special causes mentioned, "the strenuous life of the present day" and "the influence of heredity." With both of these I

cordially agree, if I may supplement them thus: "The influence of the strenuous life upon those whose nervous systems have been already considerably taxed by the presence of refractive error." Do we not see many men leading the most strenuous lives possible, and yet whose nervous systems never falter, and, on the other hand, those whose nerves are shattered, but whose lives have been anything but strenuous? As to heredity, its influence is shown in that the *initial cause* of the neuroses—*refractive error*—in one generation is so frequently *transmitted*, and gives rise to similar neuroses in the next. Do we not have instances of two brothers, or two sisters—the one with a normal, evenly balanced nervous system and normal refraction, the other with *inherited refractive error*, and the highly strung *neurotic* temperament?

It is my firm conviction that it is from the more general recognition, both by physicians and ophthalmic surgeons, of what I have indicated as the initial or predisposing cause, and the earlier and more effectual treatment of it, that we must hope for a diminution of this appalling number of suicides, and that relief and happiness may be brought to that vast number, who, victims of insomnia and neurasthenia, or "nervous breakdown," are dragging along a miserable existence.

Harrogate.

EXPERIMENTS ON THE GERMICIDAL ACTION OF COLLOIDAL SILVER.

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SOME years ago Mr. Henry Crookes[1] observed a peculiar action of some metals in inhibiting the growth of bacteria in their neighbourhood. This was afterwards recognised as being due to a germicidal action brought about by the metals being in a colloidal state. We have recently carried out some experiments on the germicidal properties of colloidal silver in the form of a liquid, collosol, prepared by Mr. Crookes. The experiments were all carried out on the typhoid bacillus by the following methods:—

1. *By the Rideal-Walker or drop method.*—In this the disinfecting power of collosol on the typhoid bacillus in water was compared with that of phenol under identical conditions, the maximum period of exposure to the disinfectant being 15 minutes. We have found that within this period even a 1 : 2000 solution of collosol does not kill the typhoid bacillus (i.e., within 15 minutes), this being only just accomplished by a 1 : 500 solution. This result indicates that collosol would be somewhat slow in acting if used as an ordinary disinfectant. The preparation is, however, too expensive to be employed and is not suggested for this purpose.

2. We next tested collosol by the method suggested by Mr. Crookes—viz., the collosol solution was mixed with nutrient broth so as to give a 500 per 1,000,000 strength. Other dilutions of this were prepared—viz., 100, 50, 25, 10, and 5 per 1,000,000 with nutrient broth, and six tubes, each containing 10 c.c. of these various dilutions, were prepared and inoculated with one drop of a 24-hour broth culture of the typhoid bacillus. The inoculated tubes were incubated at 37° C. and subcultures were made after 24 hours. It was found that no growth occurred in the inoculated tubes except in the weakest dilution (5 per 1,000,000). Subcultures made with three loopfuls from these tubes similarly showed no growth with the exception of the subculture made from the 5 per 1,000,000 dilution.

As the determinations made by the Rideal-Walker method indicated that a greater strength than this—viz., 1 : 500—would be required to be efficient for short exposures, experiments were made as above by the method suggested by Mr. Crookes, but subcultures were made from the inoculated tubes at 15 minutes, 30 minutes, one hour, and two hours after inoculation, in addition to 24 hours. The result was that growth occurred from most of the dilutions after 15 and 30 minutes' exposure, as shown by the following table:—

—	Subcultures made after					Original tubes after three days.
	15 min.	30 min.	One hour.	Two hours.	24 hours.	
500 per million	+	0	0	0	0	0
100 " "	0	0	0	0	0	0
50 " "	+	+	0	0	0	0
25 " "	+	+	0	0	0	0
10 " "	+	+	+	0	0	0
5 " "	+	+	+	0	+	+

+ = growth; 0 = no growth in the subcultures.

This again shows that collosol is somewhat slow in acting, the best results being obtained only after more than one hour's exposure. It was thought that it might be interesting to test mercuric chloride in the same manner for the sake of comparison. A fresh 1 : 500 aqueous solution of mercuric chloride was made and diluted with broth in precisely the same manner as the 1 : 500 collosol, and tested as in the last-named experiment. The results were as shown in the subjoined table.

—	Subcultures made after					Original tubes after three days.
	15 min.	30 min.	One hour.	Two hours.	24 hours.	
500 per million	+	0	0	0	0	0
100 " "	+	0	0	0	0	0
50 " "	+	+	0	0	0	0
25 " "	+	+	0	0	0	0
10 " "	+	+	+	+	+	0
5 " "	+	+	+	+	0	0

Ammonium sulphide was added to neutralise any mercuric chloride carried over. The results obtained with mercuric chloride are therefore very similar to those obtained with collosol, but if anything the mercuric chloride proved more inhibitory than collosol in the original tubes. It is to be noted that in the presence of the peptone, &c., of the broth the mercury is largely transformed into a colloidal state and evinces its great activity.

There can be no doubt from the foregoing experiments that colloidal silver in the form of collosol is an active germicide. We understand that the collosols are non-poisonous and have been administered internally.

[1] See Chemical News, May 8th, 1914, p. 217.

ROYAL INSTITUTION.—The managers have elected Professor C. S. Sherrington, M.D., F.R.S., to be Fullerian professor of physiology for a term of three years dating from Jan. 13th next. Among the lectures arranged to be given at the Royal Institution before Easter are three by Dr. Henry G. Plimmer on Modern Theories and Methods in Medicine: (1) Medicine and Science; (2) Immunity; and (3) Methods and Results. Dr. Chalmers Mitchell will give three lectures on Zoological Studies: War and Evolution. Sir Rickman Godlee is announced to give one of the Friday evening discourses, which will begin again on Jan. 22nd.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

Exhibition of Cases.—Necessity for an Exact Definition of Blindness.

A MEETING of this section was held on Dec. 2nd, Mr. PRIESTLEY SMITH, the President, being in the chair.

The PRESIDENT made sympathetic reference to the death on the battlefield of Mr. Angus MacNab, an active member of the section, and proposed a resolution of sympathy with his family, which was passed.

Dr. ROSA FORD showed a case in which an Eyelash Pierced the Lid Border backwards.

Sir ANDERSON CRITCHETT showed a patient with Small Optical Iridectomies in a case of lamellar cataract. He described the operation, which was initiated by his father 50 years ago, and narrated cases so treated in which the result was very permanent.—Mr. W. H. H. JESSOP spoke favourably of the procedure, which he had himself carried out with great success in adults as well as in children. In one case operated upon 22 years ago the result was as good to-day as at the time.—Dr. ANGUS MACGILLIVRAY said he had done the operation described several times. The results by removal of the lens were not as satisfactory in lamellar as in other forms of cataract.

Mr. LESLIE PATON showed a case which he regarded as Mikulicz's disease, and gave his reasons for the view.—Colonel R. H. ELLIOT referred to a case of the disease which he published in the *Ophthalmoscope*—that of a Hindu woman, aged 49, in whom the lacrymal glands on both sides bulged like short horns, and the accessory portions of these glands projected into the conjunctival sac. The parotid, sublingual, and submaxillary glands showed fulness. Removal of the lacrymal not only improved the appearance, but was followed by subsidence of the other glands. The tissues removed presented a close resemblance to the appearance of round-celled sarcomata.

Mr. H. ROBINSON exhibited a case of Irido-cyclitis, and Mr. H. L. EASON one of Bilateral Temporal Hemianopia, to illustrate the importance of taking the fields of vision in every case of optic atrophy. The patient, though he had seen many ophthalmic surgeons, became so blind that he had to be led about. His fields had not then been tested. He could make out moving objects and lights on the nasal side only. The onset of blindness within six months was unlike the history of the optic atrophy of tabes, and Mr. Eason thought he might have pituitary tumour. Within a month of taking thyroid he got remarkable improvement of vision. He still took the extract, for if he went long without it he noticed a relapse. The sella turcica was somewhat enlarged.

Mr. W. T. HOLMES SPICER showed a case with Angeioid Streaks.

Mr. HAROLD B. GRIMSDALE, in opening a debate on the Necessity for an Exact Definition of Blindness, stated that the importance of defining, if possible, the condition of blindness had long exercised the minds of those concerned in the teaching and maintenance of the blind, and the recent awakening of public interest in the question made it all the more urgent to clear away doubt. On the recently appointed committee on the subject he was the sole representative of ophthalmic surgery; he had therefore invited this section of the Royal Society of Medicine to try to arrive at something like unanimity on the question. Many members of the profession whom he had asked found it impossible to define the status of a blind child otherwise than was done in the Act of 1893—namely, that for educational purposes a child shall be considered blind who is too blind to read the ordinary school books. Yet all children who did not come into this definition were not fit for the ordinary school—for instance, subjects of high myopia. It was desirable to have some rule for evaluation as a guide in each case. Many factors must be taken into account, and these concerned both the state of the patient and his employment. Both central acuity and the state of the peripheral vision must be considered, as well as the relative value of the two eyes, and the presence or absence of binocular vision. For certain employments a greater acuity was needed than for others. Those having no perception of light were but a small proportion of those ranked among the blind, while among children the proportion was still smaller. Among adults the blindness from optic nerve atrophy and glaucoma led to a preponderance over children. In a blind school of 68 children 8 had no perception of light. In Boston, Mass., of 2021 eye patients 0·6 per cent. were totally blind, 7·7 per cent. "practically blind," with a vision less than 6/60 of normal. These figures were not a guide, because totally blind persons would not seek relief. The blind persons in the United Kingdom number about 27,000, according to the Census, but this could not be accurate. The ratio of the totally blind to the economically blind was about 1 to 9. The causes of economic blindness in children differed considerably from those in the adult. In the former, the chief trouble was loss of central acuity from corneal conditions, while in adults disease of the optic nerve with contraction of the visual field operated chiefly. There was evident a tendency to make the standard of vision too high, and thus throw a large number of children into the "blind" class. One reason was that a child with bad sight demanded more individual attention from his teachers than the others, and so constituted a drag on the class as a whole. This was a stimulus to put such child into a special school. This might ensure his education being better looked after for the time, but once labelled "blind" he was liable to be drafted into a blind workshop. The co-education of the blind and the seeing was one of the most interesting experiments which had been conducted; the blind child was first started in a special school until he had mastered the elements of Braille writing and reading; then he took his place among sighted children in the universal school, and often competed successfully with normal children. The capacity to read separate letters was a very different matter from being able to read words; from experiments he found that the "near" acuity as measured by reading words was often more than twice the distant acuity measured on single letters. Often so-called blind children tried to read Braille by sight in preference to by touch. He contended that between the "blind" school and the normal school there should be a third school for children who had such visual defect that they could not be taught by the aid of the blackboard. His suggestion was that a distant acuity of 6/60 should be taken as the highest limit of vision for a blind school child. Those whose vision was better than 6/24, unless otherwise recommended by a medical man, he would send to an ordinary school. All special schools should be inspected at least once a year, and the vision of each child tested and recorded. Among the blind there would always be two classes: those who could not see at all or scarcely so, and those who could distinguish large objects, and so could guide themselves by their eyes in unfamiliar surroundings. Given a good field an acuity of well below 3/60 enabled a man to move freely in the outside world; hence he regarded 6/60 as too high a standard below which a man should be regarded as practically blind. Mr. Grimsdale then dealt with the question in relation to various trades, and in conclusion suggested the appointment of a subcommittee to deal with the question in all its bearings. It was undesirable that a Bill on the subject should pass through Parliament without any reference to the opinion of that section of the Royal Society of Medicine, for in that case most difficult questions would be left to the decision of absolutely unqualified amateurs.—Mr. W. M ROCKCLIFFE said that for many years he had advocated some definition of blindness. The Local Government Board defined blindness as "Too blind, in the opinion of the Local Government Board, to perform work for which eyesight is ordinarily required." Others expressed it as "Blind for the practical purposes of life." During 30 years he had examined and admitted into a blind school large numbers, and his decisions had not been questioned. He divided cases into (*a*) blind and (*b*) partially blind. The latter were those who were able to differentiate fingers at a greater distance than three feet. There should be a clear distinction drawn between capacity for ordinary school education and for technical education. A good broad distinction was those who could count fingers at three feet and those who could not. There should be a clear decision as to who should be participants in pensions for the blind.—Dr. MACGILLIVRAY said that for industrial purposes so-called blind people could be divided into three

classes: (1) totally blind, those who had no perception of light; (2) practically blind, those possessing perception of light but were unable to take part in industrial occupations owing to marked impairment of vision; and (3) the partially blind, whose defect prevented them obtaining employment in ordinary sighted workshops, their vision yet being such as to disqualify them from entrance to a blind institution. 30 per cent. of the inmates of blind institutions belonged to the category partially blind. He discussed the case of children and the general question in relation to occupations.—Mr. N. BISHOP HARMAN contended that there was only one exact definition of blindness—the dictionary one—"want of sight." But the term was used to include many varieties of partial blindness, and for those that definition was sought. Vision was a complex act: acuity, field, mobility, mentality, and effects of difference of lighting, habit and custom, all took a share in the sensation. It was not possible by any sufficiently simple definition to gather up possible varieties, any one of which might constitute partial blindness of serious order. Any definition must be related to the facts of life, must have reference to the person's capacity for work. If it could be certified that he was incapacitated from engaging in profitable labour by reason of his defect, his was a state of blindness. Any attempt to pass a definition of blindness drawn in professional terms, to operate through the Legislature, was, he contended, doomed to failure, and was liable to be altered out of recognition. The definition in the Elementary Education Act, "inability to read the ordinary school books used by children," was worthy the judgment of Solomon, for it defined blindness in terms of life. He pointed out the parallelism of the case of mental defectives, in which also reference was to life. He advocated a certification of blindness by two independent and duly approved medical men, who should be required to state their opinion, and the facts upon which that opinion was based; such opinion being subject to the scrutiny of the medical officer of the proper authority.—Mr. F. RICHARDSON CROSS thought the Legislature was rightly attacking this question. If a child's sight was such that it could not attend the ordinary school, some other arrangement for its education must be made. There were blind schools for those nearly blind, and intermediary schools for myopes. Anything brought forward to deal with the infirmity in adults would not influence the good work being done for the children. Ophthalmic surgeons should agree among themselves as to a proper definition of a blind person. He thought it would be unsound to take the view that the layman was unable to judge on this matter. He thought the Registrar would accept two classes. One would embrace those who had no more than perception of light; the other either Snellen's types or finger-counting, the latter for preference. Anyone who could not count fingers at a greater distance than a yard should be regarded as practically blind. In order to be practical he thought that at first there should be some sacrifice of scientific precision; this could perhaps be arrived at later.—Mr. HOLMES SPICER contended that the persons to decide this question should be expert ophthalmologists, not lay members of a county council. Any rules arrived at should be for the guidance of expert examiners.—The PRESIDENT pointed out how well qualified this section was for giving expert advice on such a matter, which was of the first importance.

MEDICAL SOCIETY OF LONDON.

Discussion on Tetanus.

A MEETING of this society was held on Dec. 7th, Sir JOHN BLAND-SUTTON, the President, being in the chair.

Captain D. EMBLETON, R.A.M.C.(T.), opened a discussion on Tetanus, with special reference to: (*a*) prophylaxis; and (*b*) the serum treatment of established tetanus, dosage, and method of administration. He said he had had the opportunity of observing, both at the 3rd London General Hospital and recently at Netley, a series of cases showing a very varied picture of the disease. The discussion, he understood, was to be limited to the prophylaxis and the serum treatment of established tetanus. Before considering either of these points two features of the B. tetani must be clearly remembered: (1) the spore; and (2) the fact that the B. tetani was a strict anaerobe. With regard to the spore, it must be remembered that it was exceedingly difficult to kill. It would almost withstand dull red heat and a 1 in 20 solution of carbolic acid took 15 hours to kill it. The disease was produced by the inoculation of the spore, which subsequently developed into the bacillus under suitable circumstances. The inoculation of a *clean* spore—that was to say, a spore which had been washed free from its toxin—would not produce the disease, for it was rapidly dealt with by phagocytosis, &c. In order to produce the disease with a clean spore it was necessary to inoculate at the same time some lactic acid, or some other organisms, or to produce considerable trauma, all of which processes lowered the vitality of, or killed, the tissue locally. With regard to the anaerobicity of the B. tetani in artificial culture the organism would only develop when oxygen was excluded. This had led to the idea that the B. tetani would only develop in the body under similar anaerobic conditions. It was questionable, however, if this careful exclusion of oxygen was necessary in the body for the development of the B. tetani and other anaerobes. For example, there were two organisms which produced septicæmia and multiplied in the blood stream—the B. influenzæ and the B. Welchii. The B. influenzæ would develop artificially only in the presence of oxygen, the B. Welchii only in its absence. This suggested that the presence or absence of oxygen, though important in artificial media, played no essential part in the development of an organism in the body. It had also been shown that the B. tetani would grow artificially without any anaerobic precautions in the presence of other bacteria such as the staphylococcus aureus. Again, Tarozzi's method of cultivating an anaerobic organism was important. Tarozzi showed that if a piece of sterile tissue, such as a piece of guinea-pig's kidney, was placed in an ordinary broth culture the B. tetani would develop even if no further precautions were taken for the exclusion of oxygen. On considering this point it became evident that the piece of organ in the broth must undergo autolysis or self-digestion, and this suggested that tissue undergoing autolysis was important for the development of the B. tetani. A clean tetanus spore would only give rise to tetanus when the tissues were damaged, and damaged tissues underwent autolysis. Thus it would seem that the dead autolysing tissue rather than the exclusion of oxygen was important for the development of the disease. He then considered the nidus and migration of the organism. The B. tetani was said to occur in the disease at the site of inoculation and in the nearest lymph glands only. If this were true it was different to all other bacteria, which seemed improbable. Similar statements had been made concerning various diseases, such as diphtheria and cholera; of both these diseases the organisms had until recently been said to occur only locally, but careful investigation had shown that they could be demonstrated in the marrow and spleen. It was practically certain that the tetanus bacilli migrated rapidly by way of the lymphatics to the thoracic duct, and thus entered the blood stream and became disseminated throughout the body. The majority of organisms were then undoubtedly destroyed, though it should be possible to demonstrate them in the bone marrow, spleen, and urine. The fact that the organisms had not yet been demonstrated was probably due to the rarity of the disease and the difficulty of cultivation. (He, unfortunately, had not yet had an opportunity of searching for them in the human.) It was thus possible that the so-called tetanus toxin might be liberated from many points in the body as well as from the original focus, and this might account for the first spasms starting, as they frequently did, at a distance from the original lesion. It had been recently stated before the society[1] that if a wound was swabbed out with pure carbolic acid tetanus and sepsis would be practically abolished and wounds would heal by first intention. Against this assertion might be raised the following points. 1. 1 in 20 carbolic acid was the most efficient germicidal dilution of phenol. Pure carbolic acid was no more potent than a solution of 1 in 20. 2. 1 in 20 carbolic acid took 15 hours to kill tetanus spores. The disease was caused by spores. 3. It damaged the tissues, and these damaged tissues would subsequently undergo autolysis. 4. Kanthack used broth having a strength of 1 in 20 carbolic acid to isolate and cultivate the tetanus bacillus. 5. Dr. F. H Thiele and he (Captain Embleton) had also shown that carbolic acid (1 in 20 or pure) swabbed on to a wound artificially produced in a guinea-pig and infected with spore-bearing organisms would not protect the animal,

[1] THE LANCET, Nov 21st, 1914, p. 1200.

even when applied two minutes after the infection had been produced, the bacteria even in this short time having migrated beyond the range of the antiseptic. To sum up, pure carbolic acid appeared to be of little value in the prevention of tetanus and in the treatment of septic wounds, and, in fact, by damaging the tissues, seemed dangerous. The same argument also applied to the use of other strong antiseptics. The fact that the tetanus bacilli had only been demonstrated in the wound and the nearest lymph glands showed that the blood could deal with the organisms as long as it could gain free access to them. This suggested that in cleaning the wound no substance likely to damage the tissues should be used and that free access of blood to the part should be ensured either by hot baths, fomentations, or Bier's method. He then dwelt on the prophylaxis. The value of antitetanic serum for prophylactic purposes he held had been definitely established, both experimentally on animals and also from statistics in the case of man. It was probable that nearly every wound received by our troops operating in the highly manured districts of France and Belgium was infected with tetanus spores, but only a relatively small number of cases of tetanus occurred. Theoretically every wound should thus be treated with serum. This, of course, would be practically impossible. It had been suggested that since all wounds could not be treated prophylactically only shell and shrapnel wounds should be so treated; this would include the majority of cases, but he had seen a case of tetanus in a man wounded with a rifle bullet. The probability of tetanus arising appeared to depend upon the extent of laceration and consequent liability to infection and not on the nature of the projectile. With regard to the prophylactic dose of antitetanic serum much work had been done and the results were well known. It was manifestly impossible to lay down hard-and-fast rules as to what was and what was not a prophylactic dose. One frequently had to decide what dose was to be given and when, to a man who was to be operated upon and who had been exposed to tetanic infection several days previously. It must be borne in mind that the patient might be in the incubation period of tetanus, and might have a large nidus which would be stirred up during the operation. Ideally, at the time of operation a sufficient dose of antitetanic serum should be circulating in the patient's system. It seemed probable that 6000 units some three hours before the operation should suffice. He then considered the treatment of established tetanus. He said that with regard to the use of hypnotics it should be remembered that these were given not to cure the disease but to relieve symptoms which were otherwise inimical to life, such as fixation of the chest and suffocation, or continuous spasms, producing marked mental distress and exhaustion. On the other hand, the central nervous system was being severely poisoned by the tetanus toxin, and unless there was urgent need for the use of hypnotics it would seem safer to withhold them. The hypnotics which seemed to have given the best results were chloral and bromide or chloretone, and for rapid action paraldehyde and ether suspended in saline and administered intravenously. It had been proved experimentally on animals that the administration of antitetanic serum in established tetanus was of value. To be of use, however, the serum must be given very soon after the first appearance of the symptoms. In man the value of serum treatment was still doubted by many. It had been shown, however, that if the dose given was very large the beneficial results following the use of serum became manifest. It had been stated that if the cranial nerve nuclei other than the fifth were involved the patient would die whether serum was given or not. If the cranial nerves were not involved it was probable that the case would recover without any treatment. This he was not inclined to agree with without further proof. It had been shown that the so-called tetanus toxin gained access to the central nervous system along the axis cylinders of the nerves, and had been suggested that the antitoxin should be injected into the nerve trunks running to the lesion, under the impression that the serum would neutralise the toxin and prevent its passing to the central nervous system. Non-diffusible substances such as serum would not pass up the axis cylinders, but would run up the perineural lymphatics to the intervertebral foramina where these lymphatics left the nerves. The routes of the toxin and antitoxin were thus different. *Intrathecal inoculation* of antitetanic serum had been much advocated in the treatment of established tetanus on the assumption that the antitoxin could by this means get into rapid and intimate contact with the toxin in the affected nerve cells. This was based upon an erroneous conception. There was no evidence that non-diffusible substances such as serum could penetrate to any depth into the nerve tissue when injected either into the subarachnoid space or into the lateral ventricle. On the other hand, there was experimental evidence that it could not do so. Substances inoculated in this way rapidly passed into the big venous sinuses and lymphatic channels. Thus, this method was merely another way of giving an intravenous inoculation. Roux had published a series of experiments in which he got very satisfactory results by injecting antitoxin into the frontal lobes, but non-diffusible substances such as serum when injected into the brain either leaked back along the track of the needle and so reached the cerebro-spinal fluid or remained localised at the point of inoculation. Flexner's experiments with poliomyelitis virus showed that in the case of an infection the infection could in time spread from an inoculation in the cerebral lobes to the cord. Thus it was possible that a small amount of tetanus antitoxin might be directly absorbed and pass along to the affected areas. Roux's experiments were, however, definite, and it was necessary to re-examine them from other points of view. In tetanus the tension in the cerebro-spinal fluid had been found to be very much increased. It was possible that the relief of tension followed by a pouring out of fresh fluid might have produced the same beneficial results in tetanus as it did in meningitis. The amount of serum that could be inoculated by this route without severely lacerating the cerebrum or ploughing a way into the ventricles or subarachnoid space was exceedingly small. The *intravenous route* for the injection of serum would probably be the easiest and best, but it had this danger, that it might produce acute anaphylactic symptoms or death in a person primarily hypersensitive to horse serum or in a person who had previously been inoculated with an antiserum of any sort prepared from the horse. The *subcutaneous route* was undoubtedly the safest, since the absorption was slower and violent anaphylactic symptoms were less likely to occur. The absorption, however, was sufficiently rapid for the purposes of treatment, and very large quantities could be given. It would take too long to discuss the nature of the toxin and the mode of interaction of the toxin and antitoxin, but he believed that the toxin was produced by the digestive action of the serum or tissues of the infected animal on primarily non-toxic tetanus protein; and that the action of the antitetanic serum was to hasten this process of digestion, so that there was no accumulation of such toxic substances. The object of administering antitetanic serum was to (1) destroy the circulating toxin; (2) promote phagocytosis of the tetanus bacilli; and (3) destroy the toxin already causing symptoms to the central nervous system. Immediately after the first symptoms of tetanus appeared, 10,000 units should be inoculated, and subsequently 3000 units every two hours until the symptoms abated. The inoculation of serum should not, however, be continued beyond the third day, for by this time the tissues would have become sensitive to horse serum, and would produce from the horse serum toxic anaphylactic substances, and at the same time would destroy the antitoxin of the serum, so that it would be of little value. Hypnotics should be withheld until the severity of the spasms or the exhausted condition of the patient demanded relief. When given they should be exhibited in sufficient quantities to produce a marked effect.

Professor F. W. ANDREWES urged that the tetanus bacillus was not an inhabitant of soil, as such, but of the animal dung with which cultivated soil is mixed. The risk of tetanus was that of deep implantation in wounds of cultivated soil or other matter polluted with the dung of horses or cattle. In any given wound this risk might be roughly estimated by the evidence of such contamination either on clinical or bacteriological grounds. The bacteriological test on which he was disposed to place chief reliance was the presence of anaerobic bacilli in the wound discharges. A smear of the pus stained by the Gram-fuchsin method was commonly a sufficient clue to their presence. Unless an unlimited supply of antitoxin was at hand it was necessary to exercise some selection of cases in the administration of tetanus antitoxin as a prophylactic. He considered the presence of large Gram-positive bacilli, resembling B. aerogenes capsulatus, a good indication for

a prophylactic dose of serum. The evidence went to show that 500 U.S.A. units was an adequate prophylactic dose in ordinary cases, since it is known to be enough to protect a horse. 1000 units might be safer in a severe and very foul wound, or one in which a considerable time had elapsed since its infliction. He considered it right to give serum in a suspicious wound, even though two or three weeks had passed since the infliction of the injury. As regards the treatment of the declared disease Professor Andrewes expressed himself in favour, on theoretical grounds, of amputation or free excision of the wound, where this was possible. The route of administration of antitoxin which he advocated was the intrathecal one, as being better than the subcutaneous or intravenous routes and safer than the intracerebral one. Statistics showed clearly that, when employed, antitoxin should be given in large doses—15,000 or 20,000 U.S.A. units repeated as necessary. As an adjuvant to keeping up a high concentration of antitoxin in the central nervous system, large doses should also be given subcutaneously. More, however, could not be expected from antitoxin than that it should turn the scale in doubtful cases. In the use of sedatives for the palliation of pain and other symptoms it must be remembered that death was often due to respiratory complications, and that such drugs as morphia might in some circumstances be dangerous.

Dr. JOHN EYRE said that he was quite in accord with what Professor Andrewes had said with regard to the value of finding Gram-positive organisms resembling B. aerogenes capsulatus in the discharge from an infected wound, but he had met with several cases of tetanus in which they were not found. Inoculation of a mouse caused tetanus after two or three days. It was clear, therefore, that a decision as to treatment must depend mainly upon the surgical aspect of the case. Badly lacerated, contused, or deeply incised wounds were those which should be chosen for prophylactic treatment against tetanus. Referring to treatment with carbolic acid, he pointed out that the spore was not the entity which gave rise to the toxin, but the bacillus, which was very susceptible to the influence of carbolic acid. The site of production of the toxin should, in his opinion, be dealt with as soon as possible. With regard to the prophylactic dose, 500 units probably afforded good protection if they could be used immediately. The amount required, however, increased rapidly with delay, and at the end of 24 hours from infection 20 or 30 times as much was needed. The serum conferred immunity for about a week, and at the end of that time a second dose was necessary. When tetanus had become established, though on theoretical grounds, it was well to get rid of the site of manufacture of the toxin, in experimental work infection did not remain localised to the focus of inoculation. He thought that intracerebral injections, in view of the grave lesions produced, should only be used as a last resort, though they sometimes seemed to turn the scale. The intrathecal route was the most important and efficient. In his own experience cases treated thus had usually recovered, whilst those only receiving subcutaneous injections had usually died. The cerebro-spinal fluid was often under considerable pressure and ran freely away, so that a considerable dose of serum could be given. Intravenous inoculation acted quickly and subcutaneous slowly, but the latter kept up a persistent dosage. He advised that all three methods should be employed simultaneously.

Lieutenant R. B. BLAIR, R.A.M.C., said that he had treated 17 cases of tetanus at the Herbert Hospital, Woolwich; 6 had died, 9 recovered, and 2 were still under treatment. Ten cases were very acute. The wounds were mostly severe and all very dirty. They were generally gunshot wounds, not shrapnel. In 4, prophylactic doses of serum had been given before they entered the hospital; 3 of these had died, and it would seem that the doses they had had were small and not given early enough. He thought that unless the patients were seen within two days 4000 units should be given intraspinously. The treatment which he had employed at the hospital for the cases of established tetanus was intrathecal injection of 4000 units daily. No difficulty had been experienced using a light anæsthesia. The cerebro-spinal fluid was under very great pressure; it was allowed to run until it began to drop slowly and then the serum was injected, the volume introduced being less than that which ran away. The hypnotics used were morphia, chloral and bromide (60 grains of each 2 or 3 times in the 24 hours), and chloretone (40 grains in 2 ounces of olive oil, 2 or 3 times daily, per rectum). When the chloretone was retained it relieved the spasms for several hours, but it was often rejected. Stimulants might be necessary if exhaustion appeared. It was seldom necessary to amputate the limb during the attack of tetanus; in the few cases in which this had been done all but one succumbed. The total quantity of serum given varied greatly, 62,000 units being the maximum amount which had been employed.

Dr. CARL H. BROWNING said that one point was clear, that the amount of serum required grew enormously with the lapse of time from infection. Consequently, the earliest symptoms of tetanus must be carefully watched for. The danger of anaphylaxis might probably be avoided by the previous injection of dilute solution of antitoxin, and an anti-anaphylaxis thus produced. The blood pressure could be used as an indication of the amount of serum to be injected intrathecally. If there was a fall of blood pressure in an average adult of 40 mm. of Hg the limit of dosage had been reached.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

The Cure of Squint.

A MEETING of this society was held on Dec. 4th, Mr. ASLETT BALDWIN, the President, being in the chair.

Mr. N. BISHOP HARMAN read a paper on the Cure of Squint. Squint was the loss of the finest function of the human eyes—binocular vision. Confining his attention to fixed squints in children, he said that in a school of 1000 children no less than 18 were squinters, and that girls were nearly twice as much affected as boys. In 1400 children seen at a children clinic on account of poor vision 199 were squinters. The incidence in these cases was from 100 in the years 4 and 5, to 5 in the fourteenth year. Of these 199 cases 166 were fixed convergent squints, 16 alternating convergent, 8 divergent, and the rest were associated with disease of the eyes. After quoting from ancient authors to show that squint was held to have an evil moral significance, he proceeded to trace the evolution of the binocular vision, and the profound effect it had had on the form of man; he maintained that the upright position and "his fair large front" were directly associated with the evolution of vision. The effect on the brain was similar, for the area of visual cortex was incomparably greater in the hunting animals than in the hunted, and greatest of all in man. The control of the eyes he likened to that of the driver of a four-in-hand. A good driver would master a poor team, but the best team was defective without a driver. So the balance of the eyes was maintained by the fusion faculty of the brain; if that were poor then squint would ensue, even though the eyes were good. Defects of the eyes were adjuvant factors. In not a few cases there was a strongly hereditary tendency to squint. Treatment could be put into three grades. 1. Balancing the vision of the eyes. First there must be correction of any error of refraction by retinoscopy, next exercise of the vision of the squinting eye. 2. The awakening of the fusion faculty. This had been first attempted by Erasmus Darwin in 1778, and modern practice was of the utmost value in ascertaining the power of the brain to resume control under favourable condition. 3. Operation. The rationale of this step lay in the fact that squint of any duration was associated with changes in the tendons, and that these acted as insuperable obstacles to the resumption of brain control. In convergent squint the internus tendon was shortened and thickened, the externus thinned and lengthened. If a true cure was to be effected—i.e., the restoration of binocular vision—then if Stages 1 and 2 of the treatment failed to effect a speedy cure operation should be done before time had stereotyped the vicious effects of the squint. If that time had passed then they were no more than beauty doctors intent on removing an ugly cast. The advocate of early and regular operation must be prepared to present an operative procedure which was both expeditious and reliable. And in this connexion Mr. Harman showed photographs of the steps of his combined operation for lengthening the contracted tendon and shortening the stretched tendon. He maintained that effects could only be secure when both the

affected tendons were adjusted; indeed, it was the only method whereby the full mobility of the eye could be secured without subsequent deformity. His operation for shortening a tendon, "subconjunctival reefing and advancement," was performed as follows. The tendon was not cut or exposed to view. The upper and lower edges were cleared by two buttonholes cut through the conjunctiva and capsule. The tendon was freshened by a rasp. Special forceps of simple design were then passed into the buttonholes to secure the tendon. The movement of the forceps folded the tendon. The reef was sewn up or advanced as the case indicated, and then the antagonist was lengthened by a graduated partial tenotomy. The steps of the reefing advancement were as follows: (1) The eye was secured with an anchor stitch placed at the limbus in the axis of the tendon to be shortened; (2) the position of the tendon was noted—it was pointed out that there were well-defined surface markings and colour differences; (3) the buttonholes were cut above and below the tendon close to the canthus; (4) the tendon was lifted and both surfaces rasped with the instrument provided; (5) reefing forceps were applied, adjusted to the extent of the shortening required, and rotated; (6) the reef was sewn up by a double over-and-over stitch; and (7) the reef was advanced by fixing the stitches into the limbus. Then the antagonist was lengthened by the "jigsaw" operation. The tendon was exposed, secured in "director-forceps" which checked bleeding and gave a guide to the incisions. Three cuts were made—athwart the tendon, the middle extending two-thirds from one edge, and the lateral each one-half across from the other edge. The tendon thereon extended lengthwise without loosing its attachments or alignment. Mr. Harman showed how the cuts could be varied to secure vertical deviation also. Results: Of the first 100 serial cases, including the early experimental operations, the results obtained after the average interval of nine months were: Binocular vision, 4; straight, 36; error less than 3°, 22; less than 5°, 23 (these make 85 per cent. successes); error 10° (since corrected), 9; over that, 4; relapsed six months after operation during severe keratitis, 1; and over-correction found six months after operation, 1. He had now almost completed the second hundred cases, and the percentages of successes were still higher. One of the advantages of this combined operation was the power for nice regulation of effects. This was of the utmost importance when operation had to be done early to save the binocular vision, for at an early age a general anæsthetic was commonly needed, and the operator was entirely dependent on his own judgment and technique.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Treatment of Perforating Gastric and Duodenal Ulcers.—Exhibition of Cases.—Intestinal Stasis.

A MEETING of this section was held on Nov. 13th, Dr. F. CONWAY DWYER, the President, being in the chair.

The PRESIDENT read an address on the Treatment of Perforating Gastric and Duodenal Ulcers. For many years he had given up lavage, which he believed to be extremely harmful and responsible for many untoward results. He removed the septic fluid with large swabs and relied on pelvic drains for getting rid of any fluid left behind. Formerly he was of opinion that gastro-enterostomy should be done if the patient's condition permitted it, but in the 12 cases he described he had performed it only in one instance, and then only because the perforation was so large and the edges so friable that when the rent was sewn up he feared the lumen of the bowel was too much narrowed. Eight of the 12 cases made a complete recovery, three did not survive operation more than a few days, and one died a fortnight after operation from pneumonia.

Mr. H. STOKES showed a case of Regeneration of Ruptured Sciatic Nerve. The case was one of arthritis of the hip-joint accompanied by intense pain. Operation was performed for excision of the hip-joint, in the course of which the sciatic nerve was accidentally ruptured. The injury to the nerve was not discovered for two or three weeks. Two and a half years had elapsed since the operation, and the patient was shown to demonstrate the amount of regeneration that had taken place. The suturing of the nerve was done about three weeks after the excision. The small loss of sensation now present in the case was remarkable.—The PRESIDENT considered the absence of wasting in the limb astonishing.

Mr. W. C. STEVENSON showed cases treated by Radium Emanation Needles. From the first patient a malignant polypus was removed by Mr. Graham in May last. It subsequently grew again, and the whole of the anterior wall of the antrum had to be removed, but again the tumour began to grow. The patient came under Mr. Stevenson's care in the end of June with a large gland on one side and a smaller one on the other, accompanied by considerable proptosis. He inserted six needles into the gland, and two or three days afterwards six more needles were put in, and left in for 24 hours. After six weeks the tumour got smaller and redder. When the needles had been inserted four times the tumour showed considerable diminution. A recurrence of the swelling having taken place six weeks after the first application further needles were applied, and the patient showed the effects of the radiation. He had put on a considerable amount of weight. Although he had to take hypnotics regularly before, since the radiation was started he was able to get on without them. Another patient shown had been pronounced by Professor McWeeney to be suffering from epithelioma of the palate. The condition seemed to be much improved, and the ulcer now seen was only about half its original size.—The PRESIDENT said that he had no experience of the application of radium except what he had gained from a short visit to the Middlesex Hospital, where Sir Alfred Pearce Gould had under treatment a large number of cases. In some of them what would seem to have been an almost miraculous cure was brought about. Sir A. Pearce Gould informed him, however, that some of the cases disimproved with extreme rapidity after radium, and that it was wholly impossible to say whether in any particular case a cure would be brought about or whether the patient would be made worse.

Mr. A. J. M. BLAYNEY read a paper on Intestinal Stasis, but the discussion on it was postponed to the next meeting of the section.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held at the Metropolitan Hospital on Dec. 4th, Dr. David Ross, a past President, being in the chair.—Dr. Anthony Feiling read a paper on Acute Paraplegia, of which the following is an abstract. The question of prognosis must always be important in acute paraplegia, or paralysis of the lower limbs of rapid onset. Accurate diagnosis is essential before any prognosis could be given. Hence a knowledge of the various pathological processes which may cause this condition is necessary. These are chiefly three: (1) poliomyelitis; (2) acute myelitis; (3) acute peripheral neuritis or toxic polyneuritis. Poliomyelitis is, of course, identical with infantile paralysis, and is an acute inflammatory disease of the central nervous system; the spinal cord, however, suffered most frequently and most severely. The majority of cases of acute myelitis are in reality syphilitic in origin, the pathological process being a double one, a gummatous meningitis and a softening of the cord following thrombosis of the vessels from endarteritis. The introduction of the Wassermann reaction and the characteristic changes in the cerebro-spinal fluid have confirmed the opinion previously held as to the syphilitic origin of the majority of these cases. The pathology of toxic polyneuritis is less certainly understood; alcohol is very often the etiological factor. The clinical features of these three conditions are often characteristic. The patient's age is an important point of distinction. In poliomyelitis the characteristic features are a day or two of constitutional disturbance, followed by the abrupt onset of paralysis; pain was often a marked feature; objective sensory loss was very rare, and the sphincters were not affected; hypotonia was a prominent feature of the paralysis. The residual paralysis is always less extensive than that present at the beginning of the disease. The patient with acute syphilitic myelitis is generally older. After a few days, in which prodromal symptoms, such as tingling and numbness, may be felt, the paralysis sets in rapidly, and in the course of a few days is usually complete. At first flaccid, it later becomes spastic with exaggeration of the deep reflexes and extensor

plantar responses. Loss of sensation is marked and often complete up to a definite segmental level, affording a great contrast to poliomyelitis; it may be of the type known as dissociated anæsthesia. The sphincters are invariably affected, the commonest condition being retention of urine with overflow and obstinate constipation. The final result is a spastic weakness even when considerable recovery had occurred following adequate treatment. In toxic polyneuritis the following points were, said Dr. Feiling, useful in diagnosis: (1) Sensory symptoms are usually most marked; (2) motor paralysis is usually less complete and tended to involve the distal parts of the extremities more than the proximal; (3) the anæsthesia is not segmental in type, and like the motor paralysis involved chiefly the distal parts of the limbs; (4) hyperæsthesia is often a marked feature especially in the alcoholic cases; (5) the sphincters are not affected; (6) rapid muscular atrophy with electrical changes in the muscles supervenes; and (7) there is of course no change to a spastic type of paralysis. The author passed over such cases as the paraplegia of Pott's disease, meningitis, and spinal tumours. Two diseases, he said, had yet to be mentioned in which a sudden paraplegia may occur. These were tabes dorsalis and disseminated sclerosis. In the tabetic cases the paraplegia was usually temporary, and a diagnosis could only be reached by careful consideration of the symptoms, especially pupillary changes. In disseminated sclerosis it would sometimes happen that the further course of the case with its characteristic remissions would provide the only clue. The paper was illustrated by microphotographs and specimens illustrating the pathological lesions of poliomyelitis, tabes dorsalis, and disseminated sclerosis.

HARVEIAN SOCIETY OF LONDON.—A meeting of this society was held on Nov. 26th, Mr. J. Jackson Clarke, the President, being in the chair.—Dr. H. Crichton Miller opened a discussion on Drug-habit and its Treatment by Modern Methods. He said that the treatment consisted of two stages: (1) the withdrawal of the drug, which could be carried out largely on group lines; and (2) the "cure proper," or a reconstruction of the patient's whole mental and nervous dispositions on natural lines. The latter could only follow strictly individual indications. Having spoken of the causes and of the procedures which are employed in the withdrawal of drugs he considered the "cure proper." This was closely related to the etiology. He spoke of the rôles played by psycho-analysis and hypnotic suggestion in this part of the treatment.—Dr. J. F. Woods recounted his experiences of the treatment of 25 cases of drug-habit.—Mr. Campbell Williams, Dr. R. H. Cole, Mr. Ernest Clarke, Dr. W. H. Willcox, and Dr. J. A. Davidson also took part in the discussion.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held in the Medical Institute, Belfast, on Nov. 26th, Dr. J. S. Morrow, the President, being in the chair.—Dr. W. Calwell showed several cases, chiefly of dermatological interest.—Dr. H. L. McKisack exhibited a case of Acromegaly.—Mr. A. B. Mitchell showed a case of Solid Œdema of the Face, a case of Ichthyosis, and an Excised Gall-bladder with a large number of gall-stones.—Dr. T. S. Kirk showed a specimen from a case of Ulcerative Colitis treated by excision.—Mr. A. Fullerton exhibited a case of Skin Grafting of Upper Eyelid and a case of Club Foot treated by tarsectomy.—Dr. T. Houston exhibited a series of cases of Acne, showing the results of treatment by vaccines.—Dr. J. C. Rankin showed a series of cases of Lupus Vulgaris, a series of cases of Rodent Ulcer which exhibited Lenthal Cheatle's distribution, and also a case of Lupus Erythematosus.—Mr. Howard Stevenson showed a case of Bone Transplantation after removal of sarcoma of the femur.—Dr. T. Killen showed a specimen of Calcified Hydrocele of the Tunica Vaginalis Testis, and also a specimen of Meningocele successfully removed from a child aged 3 weeks.

Mr. W. W. Coltart, L.R.C.P. Lond., M.R.C.S. Eng., having resigned the position of medical officer to Epsom College, which he has held for 28 years, the council has appointed as his successor Mr. P. Jenner Verrall, M.B., B.C. Cantab., F.R.C.S. Eng.

Reviews and Notices of Books.

Lumley's Public Health Acts.

Eighth edition, in two volumes. Edited by ALEXANDER MACMORRAN, M.A., K.C., and JOSHUA SCHOLEFIELD, Barrister-at-Law, assisted by GERARD R. HILL, Barrister-at-Law, and KENNETH M. MACMORRAN, Barrister-at-Law. London: Butterworth and Co. and Shaw and Sons. 1914. Pp., Vol. I., cccIxx., 1205, and (Index) 232; Vol. II., ix., 1392, and (index) 232. Price £3 15*s.* net.

FORTUNATELY for those whose duties render necessary the inclusion in their libraries of the latest edition of "Lumley's Public Health" this valuable and scholarly text-book is not republished frequently. The seventh edition came out in 1908, and in the six years which have intervened about 20 Acts of Parliament requiring some kind of notice in such a work have been passed. These include at least one of importance, the Housing and Town Planning Act, 1909, which is fully set out and occupies 30 pages. Others, such as the National Insurance Act, if not directly concerned with the public health contain sections under which sanitary authorities are affected, which are more or less briefly noted.

The great difficulty in such a compilation is the avoiding of unwieldiness, which in the matter of mere physical dimensions can hardly be escaped from. The cases decided under the Public Health Act, 1875, together with its sections, which of course are set out in full, have brought the number of pages required for adequate dealing with the one statute, the principal one, up to 700, and it is not surprising that the growing bulk of the two volumes, for which four members of the Bar are now responsible, should have caused them some anxiety. In the circumstances, they assure us they have made every effort to secure brevity so far as this is possible without leading to obscurity or omitting details which those using such a book ought to have at their disposal. It is satisfactory to find that some curtailment has been achieved and that it has been effected by shortening the references to cases in the notes, and other expedients explained in the preface, and not by abridgment of the statement of the facts upon which decisions cited are based or of the decisions themselves. This is of obvious importance in the case of a work which, as the editors justly claim, is often used in places where law reports are not easily procurable, "use" in this connexion implying, as they might have added, not merely consultation by those investigating the law upon a particular point for their own guidance, but citation and acceptance in courts of law.

It is hardly necessary to say that medical officers serving local authorities in the great and general movement developed in recent years for the protection of the public health have had to become lawyers with a corresponding abandonment of their functions as medical practitioners. Further, a working knowledge of the special branch of the law which concerns them is essential to the proper fulfilment of their duties, and their influence for good must largely depend upon their appreciation of their own powers and limitations, and of the powers of the sanitary authorities whose guides and counsellors as well as servants they are. Such a working knowledge of public health law will certainly be his who, having obtained

intimacy through practical experience with the Acts and regulations applying to his routine duties, has learned to "know his way about" in "Lumley's Public Health." In doing this he will, however, be aided by a copious and well-arranged index, conveniently repeated in each volume, by a table of statutes, and a table of contents and table of cases, the fulness and careful arrangement of these guides to the searcher leaving nothing to be desired. It cannot be too often impressed upon compilers of legal text-books, and particularly of those which are for the guidance of lay officials in their duties, that it is not merely the matter which they include in a weighty volume, but the degree in which they render it accessible, which will win the appreciation of their readers.

The eighth edition of "Lumley's Public Health" will no doubt command the appreciation which the usefulness of its predecessors will have helped to win for it. Its purchase by local sanitary authorities for the benefit of those in their jurisdictions and for the use of their officers is therefore to be recommended, as its cost without being prohibitive or excessive in view of the value of the book itself, might be a heavy charge for the individual pocket.

Chemistry and its Borderland.

By ALFRED W. STEWART, D.Sc., Lecturer on Organic Chemistry in the Queen's University of Belfast. With 11 illustrations and 2 plates. London: Longmans, Green, and Co. 1914. Pp. 314. Price 5*s.* net.

THE purpose of this book is admirable, and in our view the author has succeeded in presenting "an account of some recent developments in chemistry couched in language which need not present any impediment." He realises that an interest in the progress of scientific investigation is more and more manifest, and that on all sides an intelligent curiosity is springing up as to the meaning of recent advances in science. Chemistry in its application to industrial operations is not easily explained to the ordinary man, and the chemist often resorts to a symbolic language which is unintelligible except to the initiated. The author takes the position that works on chemistry designed for the general public are apt to err either in being too elementary in treatment or in taking too much knowledge for granted on the part of the reader. We agree; and we are glad to find that in his lucid account of the subject no chemical symbols have been introduced, while elementary truths have not been laboured. The result is a readable and interesting account of the bearing of chemical developments on modern life.

Amongst other things the author brings forward the fact, which is not very generally appreciated, that all the applications of science which render our life more endurable have had their beginnings in the workshop of researchers who were striving after knowledge for its own sake. He draws attention to a few well-known instances in modern chemical research, in which the first efforts seemed to be of merely academic interest, but which have proved the foundations of far-extending industries, providing employment for thousands of men. We have not read a clearer or more interesting account of chemistry in its relations to daily life and modern needs. The chapter on immuno-chemistry, even with the words he is bound to use—like haptophore, toxophore, receptor, and so on—serves as a very good example of the author's clear exposition and writing, and should free this complicated subject from the ambiguities which may exist in the minds of many readers. The chapters on colloids and the ultra-microscope, chemistry and industry, the inert gases, chemistry in space, and transmutation, are equally good and attractive, but the book is at its best, we think, on the vital questions of food and power in the future and in its treatment of the chemical problems of now and afterwards.

Syphilology and Venereal Disease.

By C. F. MARSHALL, M.D., M.Sc. Vict., F.R.C.S. Eng., Assistant Surgeon to the Hospital for Diseases of the Skin, Blackfriars; formerly Resident Medical Officer to the London Lock Hospital. Third edition. London: Baillière, Tindall, and Cox. 1914. Pp. 465. Price 10*s.* 6*d.* net.

THIS work has reached a third edition in a few years, and we are not surprised that it has been received with favour by the profession, for it contains a clear, careful, and complete account of syphilis and the other venereal diseases. About three-fourths of the book are devoted to syphilis, and it is evident that the subject has been fully thought out. Each chapter contains a very useful list of references to original authorities.

The section dealing with the treatment of syphilis is especially good, and the author adopts a wise position as to the relative values of mercury and salvarsan. The chapters on chancroid and on gonorrhœa are good, and there is a section dealing with venereal disease and public health which deserves special mention. A very important part of this chapter relates to syphilis in connexion with life assurance, and it should prove of value to junior life assurance officers.

Festschrift Herrn Dr. H. Bircher,

Direktor der Kantonalen Krankenanstalt, Aarau (Schweiz), und Chefarzt der Chirurgischen Abteilung, zu seiner 25-Jahrigen Amtstätigkeit, überreicht von Freunden und ehemaligen Assistenten 1887–1912. Tübingen: H. Laupp. 1914. Pp. 523. With 1 portrait, 129 figures, 1 chart, and 1 curve. Price 18 marks.

Dr. Heinrich Bircher has been a man of many activities in Aargau for the last quarter of a century, we read in a dedicatory address at the beginning of this *Festschrift*, and has been the source of the inspiration resulting in the 20 papers that compose it. His portrait shows the face of a masterful man, not unlike that of the Member for Waterford.

In the Aargau district of Switzerland there is a great deal of goitre, and during Dr. Bircher's 25 years 1529 operations on the thyroid gland have been performed, 1425 in benign goitres, 56 on malignant goitres—carcinoma or sarcoma—and 48 upon goitres showing signs of inflammation. Over two-thirds of the benign goitres occurred in women; in all cases a general anæsthetic was employed, and post-operative fever, occurring in half the patients operated upon in 1890, was seen in but 16 per cent. of the cases in 1911. The recurrent nerve was injured in 2½ per cent. of the operations, and the operations proved fatal in 2¼ per cent. of the cases. About 300 pages of the *Festschrift* are devoted to various aspects of the goitre problem, and the four papers in which they are considered are worthy of a careful study. Dr. E. Bircher, in a general account of goitre, comes

to the conclusion that the enlarged thyroid gland must produce a special toxin that is responsible for the more or less serious cardiac troubles ("Kropfherz," goitre-heart) that occur so frequently in these patients, and brings forward arguments to prove that the disease is due to a colloid toxin occurring in many Swiss drinking waters. W. Bigler, in a paper on the Cardiac Lesions of Goitrous Patients, says that his material includes about 150 cases, 100 of them carefully observed; in 50 patients with tracheal stenosis due to the enlargement of the thyroid, 23 only showed cardiac hypertrophy, so that mechanical causes can hardly underlie the enlargement of the heart. He found that no histological type of goirte was constantly associated with the cardiac disturbance, and does not think that any quantitative upset of the secretory activity of the thyroid gland will account for it; in fact, he leaves the connexion between goitre and goitre-heart unexplained.

Many other of the 20 papers composing the *Festschrift* are excellent pieces of work, and the whole volume affords abundant evidence of the vitality of surgery, medicine, and pathology in Switzerland.

LIBRARY TABLE.

Cane Sugar and Heart Disease. By ARTHUR GOULSTON, M.A., M.D. Cantab. London: Baillière, Tindall, and Cox. 1914. Pp. 107. Price 5*s.* net.—Having in view the use of sugar in the German army and among Alpine climbers to sustain them under severe cardiac strain, the author was induced to try the effect of pure cane sugar in the treatment of various kinds of heart disease which failed to respond to ordinary treatment. His first case was that of an enfeebled lady, 74 years of age, who suffered from fluttering heart, with rapid, irregular, and intermittent pulse. Under the cane sugar treatment she gained strength and vigour, and ten years later is quite well, walks out daily, and travels alone. The author discusses the subject of heart failure, the physiology of cane sugar in relation to heart muscle, and gives the details of his method of treatment, which consists in the administration of 2 oz. of pure cane sugar daily for the first week, 3 oz. for the second week, and 4 oz. from then on as long as required. Total abstinence from alcohol and tobacco is enjoined, diuretics are given if required, and rest and plain diet enforced. The class of cases in which he claims to have seen almost constant benefit includes auricular fluttering and pseudo-angina pectoris due thereto, auricular tachycardia, valvular lesions after acute rheumatism, and tobacco heart. He records 20 representative cases with a few illustrative tracings. The cases are carefully taken clinical records, not always by himself. The book is suggestive, but the cases are hardly sufficient in number to justify any general conclusions or wide claims.

The Progress of Scientific Chemistry in Our Own Times. By Sir WILLIAM A. TILDEN, D.Sc., F.R.S. Second edition. London: Longmans, Green, and Co. Pp. 366. Price 7*s.* 6*d.* net.—The first edition of this interesting, though small, volume appeared in 1899, and we are glad it has now been succeeded by a second edition bringing the subject matter to date. We are not aware that a clearer or more concise account exists of the successive steps which have led to the system of theory generally accepted by chemists at the present day. Professor Tilden has done wisely also to add to each chapter a series of biographical notes of the great founders of chemical science. These notes are naturally placed at the end of the chapter in which their work of laying foundations is described. In this way the connexion between discovery and general progress is usefully brought out. The story is told in simple terms, and it presents a most interesting record of chemical science.

Pathologie Interne et Diagnostic. By ROGER HYVERT. Second edition. Paris: A. Maloine. 1914. Pp. 510. Price 6 francs.—This compact work, which forms one of the series of guides to practical medicine, having been favourably received in its first edition, is now put forth as a second edition which has been entirely revised. The author has arranged the various symptoms and diseases in alphabetical order, and under each heading has given a succinct account of the condition. The book may indeed be described as a dictionary of medicine, and in the small space at his disposal the author has collected much information which will serve as a compendium for immediate reference by the busy practitioner. A useful feature is the tabulation in the index of the various reactions, signs, and syndromes, alphabetically under the names of the various observers who first described them and after whom they are now known.

The Sanitary Inspector's Handbook. By ALBERT TAYLOR, Sanitary Inspector, City of Westminster. Fifth edition, with illustrations. London: H. K. Lewis. 1914. Pp. 612. Price 6*s.* net.—Now that this book has been brought up to date, with references to recent new regulations in sanitary administration, it again forms, as previous editions did, a very useful guide to the sanitary inspector. He will appreciate mostly, we think, the clear statements given as to his duties and the requirements in regard to them. The chapters on house drainage, drain testing, baths, sinks, and water-supply are particularly good, and the chapter on infectious diseases and disinfection is extensive and practical. The author displays a wide experience of the work that falls to a sanitary inspector.

German Technical Words and Phrases. An English-German and German-English Dictionary. By C. A. THIMM and W. VON KNOBLAUCH. Second edition, revised and enlarged. London: E. Marlborough and Co. Pp. 241. Price 2*s.* 6*d.*—The preface to this edition states that the dictionary is not intended to compete in any sense with the literary and commercial German dictionaries in the market. It is distinguished from these in supplying professional and business men with words, terms, and phrases peculiar to their respective callings and occupations, and necessarily of a scientific or technical character. A supplemental list of 20 pages has been added to this edition with cross references where necessary. In this list we observe rugine and scraper both translated as "zahnmeissel." "Zahnputzer" would have been more correct for tooth-scraper or dental rugine. Zahnmeissel, or dental chisel, also conveys the idea of a toothed chisel or toothed-plane-iron used for veneers in cabinet-making. It is easy with the German "Zahn" prefix to confuse "denticulated" with "dental." There are a few other misprints, such as "scoffolding," "steimasse," and "makalatur," but these are not important. Since

its size will enable it to be carried in the waistcoat pocket it is a useful little book.

MISCELLANEOUS VOLUMES.

THE war is such an all-absorbing topic at the present time that books bearing upon its etiology, symptomatology, and prognosis will have interest for our readers. Yet the selection of the numerous works having their origin in the war which lies before us does not contain any really valuable work.

First by its extensive aims comes the *Diplomatic History of the War*, edited by Mr. M. P. PRICE (London: George Allen and Unwin, Limited. 1914. Pp. 344 + 102. Price 7*s.* 6*d.* net), and we do not attempt critically to review it. All we shall do is to indicate the task the author has set before himself, and our general opinion as to how far he has succeeded in accomplishing it. He professes, then, to have collected and reproduced the various official documents of the various Governments and the public speeches in the European Parliaments, to which he has added texts of treaties bearing on points of importance and some of the more important press correspondence bearing on the war. From these data he has arranged a chronological diary of events, and has prefaced the whole with a historical introduction purporting to examine why the conflagration has spread from Eastern Europe, and "to uncover the methods by which the diplomacy in the different capitals has worked, leading Europe to the inevitable and disastrous end." He interlards this review with running comments indicating where, in his opinion, blame or praise seems justly to be deserved. We cannot regard the result as satisfactory in this last respect, as there seems to us a too evident bias, due to the author apparently having read his conclusions into the data instead of having drawn them therefrom. As a collection in one volume of much official material for students of the subject it may be useful. The recent publication of the French Yellow Book, however, must materially add to the cumulative weight of the Allies' case.

Of General FRIEDRICH VON BERNHARDI'S book, *Germany and the Next War*, translated by ALLEN H. POWLES (London: Edward Arnold. 1914. Pp. 288. Price 2*s.* net), it is here necessary only to state that it sets forth the doctrines of "Might is right" and "World power or downfall," which have been the predisposing causes of the present war conflagration. We suppose that no one who reads the book can fail to see that with such a viewpoint dominant in any nation that nation must sooner or later find the civilised world in arms against it. Let us hope that if no middle way comes to the surface between the author's alternatives the triumphant one will not be world power.—In *The Kaiser's War* (London: George Allen and Unwin, Limited. 1914. Pp. 251. Price 2*s.* net) Mr. AUSTIN HARRISON sets out to expose the entire German philosophy of the war. Starting with the origin of the "world power or downfall" idea, he shows the growth and dominance of the materialistic "might is right" conception, which leaves out of account the moral forces of mankind. The Kaiser's diplomatic mistakes before he embarked on war are noted, and a like number of military mistakes, Mr. Harrison thus essaying to dispose of the Kaiser's claim to the title of a great monarch. Following the methods of criminal investigation, Mr. Harrison next essays to "reconstruct" the German case. A chapter on the collapse of Socialism is intended to show up the falsity in practice of the claims to solidarity and internationalism on the part of Socialism and will not prove in the least convincing. A comparison of the guiding principles and methods of England and Germany closes an interesting book.—Dr. ARMAGAARD KARL GRAVES, who was sentenced in 1912 to 18 months' imprisonment as a spy, having already been 108 days in custody, lays bare in *The Secrets of the German War Office* (London: T. Werner Laurie, Limited. 1914. Pp. 182. Price 2*s.* net), the inner workings of German secret intelligence methods. The last chapter, Arming for Peace or War—the manuscript of the book, the publishers assure us, was in their hands last June—starts with the assertion that "the map of Europe is certain to undergo some very decided changes within the next decade, very possibly in less time." He sets forth the essential racial distinctions between the three great groups of European nations, the Teutonic, the Latin, and the Slavic, and it is easy to see that to his thinking the odds are in favour of success for the Teutonic race, for which, in addition to the commercial and military pre-eminence of Germany, he seems to rely on two factors: 1. The fact that there is no Catholic ruler in a Catholic country to-day able to support and protect the dignity of the Church, while the German Emperor "is a Protestant monarch, but he is first and last a Christian." 2. That the Scandinavian races trust Germany but not Russia. This is an interesting book, but we have no means of gauging its accuracy.—Mr. J. M. KENNEDY'S *Nietzsche* (London: T. Werner Laurie, Limited. 1914. Pp. 192. Price 1*s.* net) is an attempt to show, by means of representative quotations from Nietzsche's writings, that those who regard him as the founder from a spiritual, if not from a political, point of view of the new Germany, are greatly in error, and that the idea at present so prevalent in England that the influence of Nietzsche's writings was a dominant factor in producing the present war is entirely baseless. It may be true that Nietzsche "loathed the very name of empire," and that he severely criticised the Germany of his own time, and in even stronger terms the Germany which was developing out of it; but it seems to us that, without going beyond the quotations given by the present author, the doctrines of Treitschke and Bernhardi constitute but a logical application in a contracted sphere of principles which underlie Nietzsche's teaching. Mr. Kennedy lays himself open to criticism when he states in the preface that "the 'Christianity' attacked by Nietzsche in the following pages is 'the lifeless Christianity of the Lutheran Church.'" The statement seems to us entirely disproved by passages about the New Testament quoted on p. 185 of the work. The book is far from convincing.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

MEETING OF COMITIA.

A COMITIA was held on Dec. 3rd, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

The following communications were received:—1. From the secretary of the Royal College of Surgeons of England, dated Nov. 12th and 13th, reporting proceedings of the Council of that College on Nov. 12th. 2. From the Foreign Office, dated Nov. 4th, thanking the College for their communication concerning the sale of narcotic drugs.

Sir DYCE DUCKWORTH, the treasurer, announced that the Finance Committee had recommended that the sum of 50 guineas should be presented to the Belgian Doctors' and Pharmacists' Relief Fund.—The recommendation was adopted.

Dr. J. E. SQUIRE presented to the College two old clinical thermometers in use up to 1870, which had belonged to his father, Dr. William Squire.—The thanks of the College were returned to Dr. J. E. Squire for the gift.

Dr. Newton Pitt was elected a Censor in the place of Sir Wilmot Herringham, M.D., resigned.

Dr. A. E. ORMEROD, the Registrar, presented for approval of the College certain new regulations for the award of the Weber-Parkes prize. Hitherto the prize had been awarded triennially to the writer of the best essay upon some determined subject connected with the etiology, prevention, pathology, or treatment of tuberculosis. A silver medal had been awarded to the holder of the prize, and a similar medal, distinguished as the second medal, to the essayist who came next in order of merit. According to the new regulations, which were adopted by the College, the prize would be awarded triennially for the best work already done in connexion with the etiology, prevention, pathology, or treatment of tuberculosis; a silver medal would still be awarded to the holder of the prize, but the "second medal" would be discontinued.

A report was received and adopted from the Committee of Management, dated Nov. 17th. The report recommended that the Newcastle-on-Tyne Royal Grammar School should be added to the list of institutions recognised by the Examining Board in England for instruction in chemistry and physics.

The PRESIDENT then dissolved the Comitia.

THE LANCET.

LONDON: SATURDAY, DECEMBER 12, 1914.

Medical Certification under the National Health Insurance Act.

THE National Health Insurance Commissioners for England, Scotland, and Wales have decided to bring into operation a new system of medical certification, and have issued to all concerned a Memorandum explanatory of the procedure to be adopted. The Commissioners, we may be certain have known for some time of the difficulties; they have arisen in the working of the Act out of the absence of uniformity in the method of giving certificates, and have often been alluded to in our columns. Faulty systems adopted by the administration of various Approved Societies have played their part in these difficulties, but must not be regarded as alone responsible for them. They have been also brought about by the embarrassment of medical men, whose professional education, though highly standardised in the direction of the prevention and treatment of disease, had been neglected (and surely naturally) in directions where the filling up of forms plays so important a part. The demands of the officials of some societies in respect of certificates have been unjustifiable, but at the same time we do not deny that there has been a laxity of procedure on the part of certain members of the medical profession; it is to meet the unsatisfactory position which all allow has existed from the earliest working of the Act that the National Health Insurance Commissioners have framed a new scheme of procedure. The scheme applies to all cases in which insured persons need medical certificates of incapacity for work, in support of claims either for sickness or disablement benefit, or, indeed, for any purpose under the Act; although, for the sake of brevity, the term "Sickness Benefit" is used throughout the Memorandum.

The scheme will come into operation on Jan. 1st, 1915, and has two objects. The first, as will be gathered by what we have said, is to secure the necessary measure of uniformity of procedure on the part of Approved Societies, insured persons, and practitioners in respect of those matters which can satisfactorily be made subject to definite rules; the second is to bring about a general understanding amongst all concerned as to the procedure to be followed in various exceptional contingencies which cannot satisfactorily be dealt with under formal rules. The first object is immediately achieved. Uniformity will be secured by the fact that every medical certificate of incapacity of insured persons for work must be given on a form determined by the Commissioners. The forms will be issued to practitioners through the Insurance Committees in compact books, and the notice of sickness required by the Approved Societies showing declaration of the incapacity, claim for benefit, and declaration "off" benefit, are printed on the same form as the medical certificate, a procedure which manifestly makes for simplicity and economy of labour. Every certificate will bear the date of signature, which will normally be the date on which the doctor made the examination of his patient, and the times of giving certificates are to be governed mainly by the arrangements which the practitioner makes for seeing the patient in the ordinary course, "and will bear no necessary relation to any system adopted by the insured person's society of paying benefit on some particular day of the week." We quote here the words of a wise provision in the Memorandum. It is one which the Approved Societies can without much difficulty to themselves make arrangements to meet, while it will remove considerable trouble from practitioners who have hitherto been pressed to sign certain documents by certain dates, and will relieve the insured persons from anxiety as to the fairness of any time arrangements under which their benefits are received. The uniform medical certificate includes a description of the cause of incapacity, and the practitioner is required to certify not only as to whether the insured person is incapable of work, but also as to the specific disease or bodily or mental disablement which is the cause of the incapacity. One of the Rules which have been settled by the Commissioners for the giving of medical certificates, and which are appended to the Memorandum, deals adroitly with a difficult point in this connexion. It is obvious that the exact cause of incapacity ought sometimes to remain a matter of confidence between the patient and his medical man, and this point of view is strongly supported by the whole medical profession. The Rule in question provides that "in any case where a precise statement would in the practitioner's opinion be prejudicial to the health of the patient, or where it would inflict on him unwarrantable injury, the practitioner may describe the incapacity, disease, or disablement in less precise terms." In these cases the practitioner is required to send, on the day on which the certificate is signed, to the Approved Society of which the insured person is a member, an additional notice declaring that he has stated the cause of incapacity in his certificate with less precision than his present knowledge warrants, for good and sufficient

reasons which he has communicated to either the Government referee appointed for the purpose, or, where no such referee has been appointed, to the Commissioners themselves. The practitioner of course will send also to one of the indicated authorities the precise description alluded to in his declaration. The Rule has been carefully designed to meet a situation where public policy and professional right feeling have been at variance, and we think that working under it should be smooth in the future.

The procedure to be adopted with regard to second, intermediate, and final certificates is carefully explained in the Memorandum. The practitioner is required to give the second certificate, if so desired by the insured person, within eight days of the first certificate, when, if he is satisfied that the patient, although incapable of work up to that date, is fit to resume immediately after, his second certificate will take the form of a final certificate. Otherwise further certificates are to be given from week to week during the period of incapacity. The final certificate must be given by the practitioner, whether asked for by the insured person or not, directly the conclusion is reached that the patient is fit to resume work immediately after the date of the examination, and to this certificate the insured person must add on the same form his declaration off the funds of the Approved Society for delivery to that body. The difficulties to which medical practitioners have drawn attention as affecting the giving of final certificates are well summarised in the Memorandum. They arise in respect of persons who are found on examination to be found not quite fit for work, but likely to be fit within a few days. In the absence of precaution the patient may not see the practitioner until some days after he has become fit for work. The medical man will not then be able to certify personally as to the day on which the patient became capable of work; and the insured person will not be able to obtain a final certificate, since the latter, in the form now required, is not only a certificate of fitness to resume work after the date of examination, but also a certificate that the patient has, in medical opinion, been incapable of work up to and including that date. To meet this situation the practitioner is required to insert in the proper space on the first and intermediate certificates the date on which the patient should pay a further visit, if at the time of giving the certificate the practitioner is satisfied that the patient, though not fit to resume work immediately, will be fit before a further certificate would next ordinarily be given. Other situations, where the giving of certificates is for one reason or another attended with difficulties, have been amply provided for, and we congratulate the Commissioners on a scheme which has been carefully thought out to meet the troubles which cluster round medical certification.

The Treatment of Tetanus.

AT the meeting of the Medical Society of London on Monday last an interesting discussion was held on the prophylaxis and treatment of tetanus, a subject of great importance at the present time when many wounded soldiers of the Allied Forces in Belgium and France have been suffering from this disease. The debate, which is reported in this issue of THE LANCET, was distinctly a success; every speaker was well acquainted with his subject, and those who were present heard the very latest views of the mode in which tetanus is brought about, and first-hand opinions as to the best way of dealing with it. It was only to be expected in so difficult a subject, and one where practical clinical experience has been on the whole so limited, that these opinions did not always coincide in detail.

The debate was opened by Captain DENNIS EMBLETON, who had had opportunities both at the 3rd London General Hospital and at Netley of observing a series of cases presenting a varied picture of the disease. He dwelt on the improbability of any localisation of the tetanus organism, and considered that carbolic acid, even pure and applied two minutes after the infection had been produced, was ineffective, while by damaging the tissues it might be dangerous. He held that the value of antitetanic serum for prophylactic purposes had been definitely established, and that its administration in established tetanus had been proved experimentally to be of value when the subcutaneous route of administration was the safest. Professor F. W. ANDREWES, who followed Captain EMBLETON, pointed out that it was by no means every wound, exposed to the possibility of infection by tetanus, that was really likely to be infected. The main source of the bacillus is to be found in the intestinal excretions of the ox and also especially of the horse, and therefore the mud of the roads is extensively impregnated with this germ; so, too, all soil that has been treated with stable manure must contain very many of the organisms. Dr. ANDREWES described some experiments performed in this connexion; he had taken some of the earth from his garden and had inoculated a number of mice with minute portions of it, and though in some of the cases the amount of soil used was extremely small, yet every single mouse had become affected with tetanus. However, though garden soil teems with this bacillus, it is extremely rare for any gardener to suffer from tetanus, though daily he must have superficial abrasions with which the bacillus must have been smeared. It appeared, then, that superficial lesions were very unlikely to lead to the development of the disease, and this Dr. ANDREWES was inclined to

attribute to the fact that the bacillus of tetanus was anaerobic, so that free exposure to the oxygen of the air prevented the development of the organism. This free exposure to the air was, in his opinion, far superior to the employment of hydrogen peroxide or of potassium permanganate. This view did not commend itself to all the speakers, while Captain EMBLETON had previously laid great stress on the damage of the surrounding tissues as an important factor in the development of the germ, and especially in the associated inoculation of septic organisms.

As to the treatment, all the speakers agreed that the use of antitetanic serum far surpassed other methods that have been devised, and that hypnotic and sedative drugs held a very secondary place in treatment, though they might be useful in relieving pain, in allowing the reception of food, and in inducing sleep. It was also agreed that the serum should if possible be given prophylactically, but at once the difficulty arose that it was practically impossible to administer the serum to every wounded man, for the available stock of serum was utterly insufficient. How, then, can the suitable cases be selected? It seems that deep wounds are more likely to be affected than those which are more superficial, but some further differentiation is necessary, and Dr. ANDREWES suggested that the demonstration of the presence of the Gram-positive bacillus of Welch was very suggestive of the presence of the bacillus of tetanus, and so far as he has used this test it appears to be well founded. By some such method the number of cases to which the serum should be given prophylactically may be much reduced. When the dose of serum has been delayed for one cause or another till the symptoms become manifest its value is markedly reduced, but it may be given here with good effect if the dose is greatly increased. The channel of administration has also to be determined. It is curious to note that while one observer favoured the subcutaneous route another considered the intravenous method the best, and a third speaker held that the serum should certainly be injected into the subarachnoid space of the spinal cord; and with this last view we are inclined to agree if a prompt action of the serum be desired. The intracerebral injection found no supporter, though it was admitted that it might be employed in very serious cases as a last resource. The intracranial method must do immense damage to the structures of the brain, unless the quantity of fluid injected be limited to a few drops. It was clear from the whole of this very interesting debate, as well as from the differences of opinion upon the method of administering the accepted remedy, that our knowledge of the therapeusis of tetanus is still in a state of flux. We have in the antitetanic serum an agent of a high degree of potency. Further experience will show us how best it may be used, but at present it is abundantly clear that in its early prophylactic use lies the best hope of combating a deadly disease.

Annotations.

"Ne quid nimis."

UNDERWEAR AND WAR.

THE history of underclothing has been neglected, while external costume has been extensively described. Yet underwear, though humble and obscure, has manifestly played an important part in the hygiene of peoples and of armies. Our ancestors were hardy and often cold. Charles I., according to tradition, shivered on the snowy day of his execution (Jan. 30th, 1649), and wore as many shirts as possible next his skin, which seems to prove that the modern vest was then unknown. Drawers, a word of humble origin according to the New English Dictionary, were for ages made of linen or some similar material. Cotgrave, writing in the year 1611, speaks of drawers as short and close breeches or underhose of linen, and in the *Spectator*, No. 51, which was written by Steele, holland drawers are mentioned. The French have an old and well-established word for this article of dress, and in Boyer's French-English Dictionary, edition 6, 1738, we find "*caleçons*" duly referred to and explained by the customary English translation, but these garments must have been short in an age that wore breeches and that prided itself on the contours of what was known as "a leg." In Bailey's Dictionary (1737 edit.) the valuable garment is not referred to, and those who closely examine Hogarth's pictures, such as the "Orgie in the Rose Tavern," will find that it is not worn by the dishevelled beaux and others there depicted. Woollen underclothing dates in England from the second half of the nineteenth century. At first it was regarded as a fad, and is so regarded by the French and Italians to-day. *Caleçons* in France and in Italy are still made of cotton, and are quaint trouser-like garments. An old-fashioned Frenchman in his underclothing presented a curious spectacle. There were so many buttons about him. One such, and as lately as 1890, has described the revolution caused among Frenchmen by the introduction of cotton underwear from England in the time of Louis Philippe or earlier. The English culture-drift, he averred, gave his section of Protestant France, drawers, pietism of the school of Mrs. Fry, and steel pens. He adopted the first and last, and rejected the central product of a leading civilisation. The French are still all for cotton. A young French officer now lying wounded in Le Havre, and loud in his praise of the English Red Cross and the English Tommy, assures us that in his circle the wearing of wool next the skin is regarded as "*vieux monsieur*," or, as we should say, "molly-coddling." We wonder if our gallant allies are properly clothing themselves in their present terrible circumstances. If they are wearing wool next the skin they have passed through yet another revolution, none the less drastic because unseen or obscure. Our own soldiers, on the other hand, are probably better clad, thanks to our knitters, and fed than in any previous campaign. So ineradicable in itself, custom in food and dress has more to do with the hygiene and *moral* of a winter campaign than many suppose.

EPSOM COLLEGE.

WE publish this week a letter from Sir Henry Morris, in which he calls the attention of our readers to the close link between Epsom College and the medical profession. Old Epsomians and others who have identified themselves with the fortunes of the College are not likely to need this reminder; but there must still be many who are unfamiliar with the advantages offered by Epsom College as a school for the sons of medical men, and with the claims of the Royal Medical Foundation of Epsom College upon the generosity of the medical profession and its friends. Owing to the war, which has complicated everything so that scarcely a single wheel of life now revolves at the old rate, money is increasingly difficult to raise for what may be called the peaceable charities. Nevertheless, the Council looks to the friends of Epsom College to bear the needs of the Royal Medical Foundation in mind, so that as the older supporters drop out one by one their places may be filled up and the excellent work of the institution may be carried on with undiminished success.

WHOOPING-COUGH IN NEW YORK.

IN New York City whooping-cough is known to cause three or four hundred deaths per annum, more than half of the victims being infants under one year of age. The director of the City Bureau of Infectious Diseases has determined to cut down this loss of life, if it can be done, by the employment of the following measures.[1] As whooping-cough is infectious for a week or more before the appearance of the characteristic whoop makes it diagnosable, to prevent the spread of infection at the outset is impossible. The Department of Health therefore proposes to concentrate its efforts on protecting infants and very young children from infection with the disease, and on furnishing suitable care for such of them as may contract it. Arrangements have been made to admit certain cases into hospital, where they will be kept until the period of maximum infectivity is over. Other cases will spend the day in "day-camps"; it is hoped that a disused ferry-boat will be available for use as a whooping-cough day-camp, moored close to a children's hospital that will serve as its base of supply. Yet other cases will attend at special whooping-cough dispensaries. In addition, district nurses will devote a large amount of their time to visiting the homes of infected children, advising and educating the parents in the management of the cases and the best methods of avoiding the spread of infection. Whooping-cough is a notifiable disease in New York City, but the notification is made in a very perfunctory spirit, it seems; thus out of 116 institutions, hospitals, and dispensaries caring for cases of whooping-cough, 49 were found not to be in the habit of notifying them to the Department of Health as required by the Sanitary Code. The control of whooping-cough is very much hampered by the incompleteness of our knowledge of the exact cause of the disease. It has not been proved that the same micro-organism is present in every case of pertussis. Most observers have found the minute bacillus described by Bordet and Gengou in 1906, faintly staining, Gram-negative, less pleomorphous than the very similar influenza bacillus that is morphologically indistinguishable from it. As the disease advances the Bordet-Gengou microbe may disappear from the sputum, while the whooping persists. Various strains of this bacillus have been isolated from different cases, and this is a factor of the greatest importance in considering the treatment of the disease with vaccines. It appears also that mixed infections are not rare in whooping-cough; for both these reasons the identification of the infecting agent in any particular case by means of complement-fixation tests is unsatisfactory at the present time. Finally, we still lack definite evidence as to the specific pathogenic action of the bacilli in pertussis. Mallory has recently claimed that the specific lesion consists in the presence of the microbes among the cilia of the epithelial cells in the trachea and bronchi; further work, however, is required before the truth of this interesting hypothesis can be admitted. It will be remembered that Bordet insists that there must be in whooping-cough a specific toxin that produces hypersensitiveness of the recurrent laryngeal nerve and its centre. The vaccine treatment of pertussis is said to have proved disappointing, though harmless, in New York, no doubt for the reasons indicated above.

[1] Department of Health of the City of New York. Reprint Series No. 17, May, 1914. J. S. Billings, W. H. Park, and Anna W. Williams.

VENTILATION AND HUMIDITY IN TEXTILE MILLS AND FACTORIES.

THE question of the ventilation and humidity in textile mills and factories has for a long time presented considerable difficulty. The chief problem was how the conditions of the atmosphere in the weaving shed could be so adjusted that at the same time they should be favourable to the operation and without prejudice to the health of the worker. It is well known that in the textile industries the dampness of the atmosphere in which manufacturing processes are carried on is of primary importance, and, as is pointed out by Mr. Cecil H. Lander, M.Sc., A.M.I.C.E., A.M.I.M.E., lecturer in civil engineering in the University of Manchester,[1] this was recognised by the early spinners and weavers, inasmuch as hand looms were often installed in a damp portion of the worker's cottage and the earth floor was watered if necessary and wet cloths hung round or near to the warp beam. On the introduction of the spinning-frame and the power-loom, and the consequent grouping of many machines under one roof, the textile industry tended to rapid growth in districts where the natural amount of atmospheric moisture was great. So the development of this industry took place in moist climates such as prevail in Lancashire and in the north of Ireland. Moisture is, in fact, essential in the production of yarn of maximum strength. Official inquiries have been made from time to time as to the effects of high humidity and temperature upon the health of the weaver, and in one report the general emaciated appearance of weavers was observed, and this was attributed "to the effects of the warm moist atmosphere in which weavers work, for they are not seen in outdoor labourers or in workers in other industries in Lancashire." During recent years the matter, as is well known, has received the attention of the Home Office, and the Factory Acts now require that if the wet-bulb temperature in a

[1] Ventilation and Humidity in Textile Mills and Factories. By Cecil H. Lander. London: Longmans, Green, and Co. 1914.

weaving shed reaches a certain specified maximum all artificial humidification should be cut off. Mr. Lander has given a very interesting account not only of the general questions of ventilation and humidification but also of the methods and appliances introduced to render a compliance with the requirements of the Act possible without interfering with the conditions essential for manipulating and producing a satisfactory yarn.

THE CLASSIFICATION OF TRYPANOSOMES.

IT is generally recognised that the classification of trypanosomes is a very difficult subject, and hitherto all attempts which have been made to deal with the problem have proved unsatisfactory. A fresh endeavour to overcome the difficulty has recently been made by Surgeon-General Sir David Bruce, Director of the Sleeping Sickness Commission. At the October meeting of the Society of Tropical Medicine and Hygiene Sir David Bruce explained his new system of classification of the African trypanosomes pathogenic to man and domestic animals. His method is based on three principal points—namely, the morphology of the trypanosomes, the action of these parasites on animals, and, lastly, the mode of the development of these organisms in the tsetse fly. With the exception of T. evansi and T. equiperdum all these parasites are carried from sick to healthy animals by tsetse flies. On these grounds Sir David Bruce classifies the pathogenic trypanosomes into three separate groups. The first is the T. brucei group, which includes four species—namely, T. brucei, T. gambiense, T. evansi, and T. equiperdum; the second is the T. pecorum group, comprising two species—T. pecorum and T. simiæ; the third is the T. vivax group, including three species—T. vivax, T. capræ, and T. uniforme. These may be said to constitute all the principal important trypanosomes discovered up to the present time in Africa. As regards the development of these organisms in the tsetse fly, in the first group it begins in the gut of the insect and is completed in the salivary glands; in the second the development commences in the gut of the fly and finishes in the proboscis; and in the third group the whole development of the trypanosome takes place solely in the proboscis of the fly. When this new classification came to be discussed by the Society of Tropical Medicine and Hygiene some members criticised it freely, while others admitting the general soundness of the division into three main groups according to the development in the fly, thought the classification was the best from the zoological point of view. No doubt with some revision the system of classification proposed by Sir David Bruce will go a long way towards removing the chaos which has hitherto surrounded this important subject.

Sir Frederic Eve, senior surgeon to the London Hospital, has sent in his resignation as from the beginning of December, when he completed a period of 30 years' service on the surgical staff. The committee unanimously elected him consulting surgeon to the hospital. Sir Frederic Eve has been appointed by the Army Council consulting surgeon to the troops serving in the Eastern Command with rank and pay of lieutenant-colonel.

THE INDIAN MEDICAL SERVICE.

CORRESPONDENCE relating to the condition of the Indian Medical Service and of the medical profession in India and a despatch from the Secretary of State have recently been issued as a White Paper.[1] The first and longest document is a letter from the Government of India, Home Department, to the Secretary of State, dated Nov. 17th, 1910. This consists, first, of a brief résumé of the position of affairs since Lord George Hamilton's despatch of May, 1899, to the Indian Government, in which he asked whether means could not be found either to reduce the establishment of the Indian Medical Service or to restrict its increase; secondly, a discussion of the measures that might be adopted by Government to assist the development of an independent medical profession; and thirdly, a strong recommendation that the decision in Lord Morley's despatch of December, 1908, against any further increase in the Indian Medical Service should be reconsidered. The second document is Lord Crewe's despatch of Nov. 22nd, 1912, in reply to the preceding, in which he, speaking generally, accepts the conclusions arrived at, and adopts the view that the question of taking measures to promote the growth of an unofficial medical profession must be considered as distinct from that of limiting the cadre of the Indian Medical Service. The third is a letter from the Home Department (Government of India) to the Secretary of State, dated March 5th, 1914, indicating the developments that have taken place during the last three years and the need for an increase in the cadre of the Indian Medical Service.

Proposals in regard to Indian Medical Service.

The view of Lord George Hamilton, expressed in his despatches of 1899 and subsequent years, was that provision for the increasing medical needs of India should be met rather by encouraging the development of an independent medical profession than by increasing the establishment of the existing Indian Medical Service. He considered that it would be beneficial if European medical men were to establish themselves in private practice throughout the country in the same way as in other parts of the Empire, rather than that increased needs should be met by adding to what was primarily a military service. Lord Curzon's government in 1901 concurred in the opinion that the growing needs of India in regard to medical relief should be provided for outside the Indian Medical Service, and welcomed the growth of an independent medical profession, which, however, would be slow and gradual in its development. In 1908 the Indian Government had pointed out that about a third of the civil appointments held by the Indian Medical Service do not form any part of the war reserve, and that therefore from a military point of view there could be no objection to the transfer of these appointments to medical men not belonging to that service; such a transfer would naturally be a gradual process. It is now acknowledged that that opinion had been arrived at without consulting the local governments, and that the objections to the course proposed had been gravely underestimated. With commendable frankness the

[1] Correspondence regarding the Indian Medical Service and the Medical Profession in India. Cd. 7547. Price 2½d. Wyman and Sons 1914.

mistake is acknowledged; it is admitted that the transfer of a certain number of Government appointments from the Indian Medical Service to private practitioners would do practically nothing to encourage the growth of an independent profession; that most of the existing civil appointments held by the Indian Medical Service could not be suitably given to men not in regular Government service; and that the retention of a considerable number of superior civil appointments for the service is necessary, both for making it attractive to good men and in the interests of administrative efficiency.

After referring to the different classes of medical practitioners in India, and mentioning proposals for the development of an independent medical profession, it is shown that the orders in Lord Morley's despatch of December, 1908, that there should be no increase in the civil cadre of the Indian Medical Service, and that its strength should be reduced, cause considerable administrative difficulties, and it is strongly urged that they be withdrawn. If this is not done, "the attractiveness of the service will be greatly diminished, the efficiency of the medical and sanitary administration of the country will be gravely impaired, the substitution of inferior for superior men will retard instead of accelerating the spread of Western medicine in India, and a grave amount of discontent, which could not fail to affect recruitment, will be provoked among all the Indian services which are recruited in England." This letter is signed by Lord Minto, Sir O'Moore Creagh (Commander-in-Chief), Sir G. Fleetwood Wilson (Finance Member), and the other members of the Viceroy's Council.

Reply of Secretary of State.

Lord Crewe's reply is short and in general agreement with Lord Minto's proposals. He suggested that as far as possible civil surgeoncies not reserved for the Indian Medical Service should be given to civil assistant surgeons, considering that military assistant surgeons are, as a rule, unsuitable for the work. No reasons for this being the case, and no instances that the unsuitableness actually exists, are adduced, except the fact that they are not recruited with reference to any qualifications for the duties of a civil surgeon. Lastly, the orders against increase in the civil cadre of the Indian Medical Service are withdrawn, the Secretary of State being persuaded that the considerations on which they were grounded cannot now be held sufficient to justify this step. For the two reasons of necessity for economy and desirability of increasing the number of important posts held by Indians, it is, however, still considered that the Indian Medical Service should be restricted to the military needs of the country. Moreover, the conclusions on the whole question are to be regarded as provisional in view of the inquiries to be conducted by the new Public Services Commission.

Letter from Government of India.

The letter from the Government of India, dated March 5th, 1914, refers to the proposed legislation prohibiting the issue of unauthorised medical degrees or diplomas, and introducing registration of medical practitioners, which reforms will commend themselves to all interested in medical education and practice in India. Government are strongly averse from any reduction in the civil surgeoncies held by military assistant surgeons or any diminution in the number of appointments held by these officers, considering that "the military assistant surgeon frequently makes a better civil surgeon than the civil assistant surgeon." In a concluding paragraph it is indicated that proposals may shortly be submitted by the Indian Government for an increase in the civil cadre of the Indian Medical Service in view of the growing medical needs of the country, for which the Viceroy's Council hope to show "that, looking to the work to be done, the services of Indian Medical officers [i.e., officers of the Indian Medical Service] are indispensable."

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

DURING the week the objects of this fund have been brought to the notice of many leading members of the medical profession, a fair number of subscriptions have been received, and the General Committee has been joined by, among others, Dr. A. H. F. Barbour (President of the Royal College of Physicians of Edinburgh), Professor Conway Dwyer (President of the Royal College of Surgeons in Ireland), Professor John Barlow (President of the Royal Faculty of Physicians and Surgeons, Glasgow), Sir Anderson Critchett, Dr. James Pearse, Sir William Osler, Mr. H. P. Symonds, Dr. W. Collier, Sir Isambard Owen, and Sir W. Arbuthnot Lane.

At the meeting of the Provisional Committee on Nov. 24th Dr. J. A. Macdonald, the chairman of the Council of the British Medical Association, said that in order to bring the appeal before the members of the profession generally it would be sent to the divisions and branches of the Association in the United Kingdom. In a circular letter issued by the medical secretary on Nov. 28th to the honorary secretaries of divisions and branches in the United Kingdom, it was stated that the officers of the Association fully realised that the claims on the profession at the present time are very great, but that they believed that this special appeal to doctors and pharmacists on behalf of the Belgian doctors and pharmacists was one to which nearly every member of the two professions would be glad to respond according to his means. It is understood that the Pharmaceutical Society of Great Britain is making a similar appeal through its local branches. It is known that already several divisions of the British Medical Association have arranged to call meetings and to appoint committees to raise subscriptions, and at a meeting of a Northamptonshire division on Dec. 1st it was decided to send a circular to all members of the profession in the area.

At the last meeting of the Liverpool Medical Institution the President, Dr. E. W. Hope, medical officer of health of the city, brought the Fund to the notice of the members, and the institution of a local contribution was warmly approved. Similar movements in other great centres would, of course, be very valuable.

Mr. W. J. Uglow Woolcock, the secretary and registrar of the Pharmaceutical Society, has consented to become honorary secretary to the committee conjointly with Dr. Squire Sprigge, and the hearty coöperation in the objects of the committee, expressed by the Pharmaceutical Society at a recent meeting of the council, will thus receive direct expression.

The following subscriptions to the fund have been

received by Dr. H. A. Des Vœux, the treasurer, up to Tuesday evening last, in addition to subscriptions amounting to £1024 9s. 6d., which were acknowledged last week. The list does not include any additional subscriptions received by the Irish committee:—

	£	s.	d.
Mr. R. Macfie Johnstone	3	3	0
Sir Lauder Brunton, Bart. (second donation)	4	4	0
Mr. R. C. Fuller (second donation)	0	10	6
Miss M. A. Pilliett, M.B.	1	1	0
Dr. John P. Uthoff	5	0	0
Mr. Charles Umney	2	2	0
Mr. C. S. Ashton	1	1	0
Mr. A. Stooke	1	1	0
Mr. J. G. Edwards	0	5	0
Mr. Arthur Toone	1	1	0
Mr. Cicero S. Clark (collected by his daughter)	2	6	4
Mr. W. Thornton	1	1	0
Mr. G. Henry Pedler	5	0	0
Mrs. M. A. Rideal	5	5	0
Mr. C. J. Bond	2	2	0
Dr. R. Arderne Wilson	0	10	0
Dr. Robert Saundby	5	0	0
Dr. Claude Wilson	2	2	0
Mrs. Thornton Levy	5	5	0
Mr. George Heaton	2	2	0
Mr. J. Y. W. MacAlister	5	0	0
Dr. W. A. Hollis	1	1	0
Dr. H. M. Eyres	1	0	0
Dr. R. Tuxford	1	1	0
Messrs. G. B. Westmacott and Son	1	1	0
Dr. Templeton Dunlop	1	1	0
Mr. J. Spring	1	1	0
Mr. H. J. Thomas	5	0	0
Mr. Edmund Owen	5	5	0
Mrs. A. W. Hearn	20	0	0
Colonel C. H. Joubert de la Ferté	5	0	0
"M.D."	3	3	0
"March Brown"	0	10	0
Mr. J. P. Ellerington (second donation)	5	0	0
Dr. William Habgood	2	2	0
Dr. Hedden	1	1	0
Dr. J. G. Jack	1	0	0
Mr. W. H. Patmore Sheehy	5	0	0
Dr. Dundas Grant	5	0	0
Sir William Milligan	10	10	0
Sir William Osler, Bart.	10	10	0
Sir Richard Douglas Powell, Bart.	5	0	0
Dr. J. H. Garrett	2	2	0
Dr. J. Theodore Cash	3	3	0
Dr. Lovell Drage	5	0	0
Mr. Russell Coombe	1	1	0
Dr. Crawford Watson	3	3	0
Dr. Amand Routh	5	5	0
Mr. J. Copeland Poole	2	2	0
Royal College of Physicians of London	52	10	0
Mr. James Sherren	5	5	0
Mr. R. H. Dreaper	5	0	0
Dr. H. Bowen-Williams	0	10	6
Sir Anderson Critchett, Bart.	10	0	0
Dr. J. Auriol Armitage	5	5	0
Dr. G. A. Leon	1	1	0
Dr. F. M. Sandwith	5	5	0
Mr. W. Jessop	10	10	0
Mr. H. S. Pendlebury	3	3	0
Dr. Smallwood	2	2	0
Miss Cooke	1	1	0
Dr. Barrs	5	5	0
Mr. Arthur Thomson	3	3	0
Dr. N. Gerald Horner	1	1	0
Mr. W. O. McKane	1	1	0
Mr. Charters Symonds	20	0	0
Mr. O'Dowd	3	3	0
Dr. and Mrs. Edwin Rayner	5	5	0
Dr. Rattray	2	2	0
Mrs. Thornton Levy (second donation)	5	5	0
Dr. Farquhar Buzzard	3	3	0
Dr. W. Cecil Bosanquet	5	0	0
Mr. St. G. M. L. Homan	1	1	0
Dr. Jno. Brown	1	1	0
Dr. Mary S. Ackworth	2	0	0
Dr. H. H. Taylor	5	0	0
Dr. W. M. Palmer	1	1	0
Mr. Robert Harris	2	2	0
"M.D. Brux."	2	0	0
Dr. Charles Aldridge	1	1	0
Dr. Stanley E. Denyer, C.M.G.	1	1	0
Dr. Mary H. Carew Hunt	2	2	0
Mr. G. Dawson, R.N.	1	1	0
Mr. Maurice Mottram	1	1	0
Mr. H. Bellamy Gardner	3	3	0
Dr. A. R. G. Pocock	2	2	0
Dr. Henry Wilson	0	10	0
Dr. A. J. Rodocanachi	1	1	0
Dr. F. S. Palmer	2	2	0
Dr. William Collier	5	5	0
Dr. Clement Dukes	5	0	0
"A Friend" (per Mr. J. Y. W. MacAlister)	2	2	0
Dr. and Mrs. Templeman	10	10	0
Sir Watson Cheyne	25	0	0
Sir W. Arbuthnot Lane, Bart.	20	0	0

Subscriptions should be sent to Dr. H. A. Des Vœux, 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, and crossed "Lloyd's Bank, Ltd." Subscriptions by members of the profession in Ireland may be sent to Dr. T. Percy Kirkpatrick, Registrar, Royal College of Physicians, or Dr. C. M. Benson, secretary to the Council of the Royal College of Surgeons of Ireland, at the Royal College of Physicians of Ireland, Kildare-street, Dublin.

In the first list of subscriptions Mr. J. P. Ellerington's name appears as a donor of £20. He has signified his intention of further subscribing £5 monthly for six months, and his first monthly donation is acknowledged to-day. In the same list Dr. G. Grey Turner's name is wrongly given as A. A. Turner.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries acknowledges the receipt of surgical instruments kindly contributed by the following gentlemen since the publication of the last list:—

Dr. R. Arderne Wilson, Sausmarez-place, Guernsey; Dr. W. Horton Date, Ashley-road, Barnstaple; Dr. Pollock, Tiverton, Devon; Dr. W. Habgood, Health Department, Sutton, Surrey; Dr. Leishman, Slough; Mr. James Watson, Norwich; Dr. W. H. P. Sheehy, Montebello, Totteridge, Herts; Dr. J. B. Berry, Keighley; Dr. P. C. Maitland; Dr. J. E. Thomas, Bangor; Dr. G. A. Pirie, Airliebank, Dundee; Dr. H. A. Des Vœux, Buckingham Gate, S.W.; Dr. W. J. Harnett, Belvedere House, Barnet; Dr. Leon, Torquay; Dr. C. J. W. Dixon, Bridge-street, Hawick, N.B.; Dr. E. Smallwood, The Bays, Knight's Hill, West Norwood, S.E.; Dr. A. J. Ballantyne, Sandyford-place, Glasgow; C. W. J.

HEALTH OF THE POST OFFICE STAFF.—In the report of the Postmaster-General for the year ended March 31st, 1914, it is stated that the health of the staff has again been satisfactory. The average sick-rate of the established staff was 7·9 days for men and 12·2 days for women, and of the unestablished staff 5·2 days for men and 6·0 days for women. The deaths recorded showed an annual death-rate of 3·1 per 1000 for men and 1·0 for women on the established staff. The proportion of deaths from tuberculous diseases to deaths from all causes in the Post Office was 16 per cent.; and the proportion of deaths and retirements from tuberculous diseases to deaths from all causes and retirements from ill-health was 16·1 per cent. "It appears," the report continues, "from the Registrar-General's annual return for 1911 that in the case of persons in the United Kingdom between the ages 15 and 65 the proportion of deaths from tubercular diseases to deaths from all causes was 21·0 per cent., and it therefore appears that the conditions of service in the Post Office are not, as is sometimes alleged, specially favourable to the development of tuberculosis. This is confirmed by the fact that in 87 per cent. of the cases of tuberculosis occurring during 1913 there was a history either of previous tubercular disease in the family or of previous illness predisposing to tuberculosis in the patient. Every facility is granted to Post Office servants suffering from tuberculosis to obtain sanatorium treatment where a reasonable prospect of recovery exists. It may be of interest to point out that of the cases occurring during 1913, which were completed before the end of the year, about 61 per cent. of those who received sanatorium treatment were able to resume duty as compared with 22 per cent. in the case of those who did not receive such treatment. An examination of the cases of neurasthenia occurring during 1913 showed that in the majority of cases the disease was attributable to physical causes or to domestic troubles, and that there is no foundation for the allegation that Post Office work has a prejudicial effect upon the nervous system of the staff generally."

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

COMMITTEE FOR THE INVESTIGATION OF ATMOSPHERIC POLLUTION:

Summary of Reports for Month ending Sept. 30th, 1914.

1	2	3	4	5	6	7	8	9	10	11	12
			Metric tons of deposit per square kilometre during month.								
			Insoluble matter.			Soluble matter.			Included in soluble matter.		
Place.	Correspondent.	Rainfall in millimetres.	Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.	Total solids.	Sulphate as (SO_4).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND—											
Birmingham, Central ...	Dr. J. Robertson, M.O.H.	22	0·10	2·80	8·50	1·30	3·40	16·10	2·10	0·20	0·10
Bolton	Dr. J. E. Gould, M.O.H.	126	0·08	2·02	7·54	7·07	7·57	24·28	4·05	1·88	0·09
Exeter	Mr. H. Lloyd Parry, Town Clerk.	65	0·04	1·62	3·20	0·78	1·98	7·63	0·74	0·39	0·00
Kingston-upon-Hull	Mr. A. R. Tankard, Public Analyst.	31	0·10	2·80	3·48	1·54	2·70	10·62	1·55	0·36	0·01
Liverpool	Dr. E. W. Hope, M.O.H.	81	0·16	3·02	7·30	5·49	3·88	19·86	2·93	1·49	0·21
London—											
Meteorological Office ...	Director, THE LANCET Laboratory.	21	0·05	1·97	1·92	1·28	1·94	7·16	1·21	0·45	0·05
Embankment Gardens ...	Mr. J. Ollis, Chief Officer, Public Control Department, L.C.C.	26	0·61	6·41	9·60	0·78	10·88	28·27	1·74	1·09	0·02
Finsbury Park...	,,	30·0	0·11	2·87	6·15	1·80	3·60	14·53	2·17	0·40	0·07
Ravenscourt Park	,,	22·0	0·01	0·55	1·47	0·26	1·10	3·39	0·43	0·30	0·03
Southwark Park	,,	19·0	0·05	3·27	6·73	0·32	3·26	13·63	1·67	0·37	0·05
Wandsworth Common...	,,	10·0	0·02	0·54	1·31	1·25	2·76	5·88	1·50	0·41	0·01
Victoria Park	,,	30·0	0·05	0·99	2·29	2·49	6·61	12·44	3·60	0·73	0·04
Golden Lane	Dr. W. J. Howarth, M.O.H	22·0	0·02	2·50	3·64	1·27	2·44	9·87	1·69	0·37	0·09
Malvern	Mr. W. Osborne Thorpe, Engineer U.D.C.	22·0	0·01	0·22	0·58	0·21	0·51	1·55	0·18	0·12	0·00
Manchester—											
Cheadle	Mr. J. Warrington, Secretary, Air Pollution Advisory Board.	60·0	0·09	1·89	2·34	1·52	2·96	8·80	1·88	0·86	0·04
Davyhulme	,,	64·0	0·04	1·16	3·18	1·73	3·50	9·61	2·38	0·95	0·10
Fallowfield	,,	67·0	0·05	1·36	3·06	0·94	3·05	8·46	2·03	0·73	0·05
School of Technology ...	,,	73·0	0·10	3·34	6·63	1·63	4·92	16·62	3·39	1·09	0·09
University...	,,	67·0	0·13	2·46	5·66	1·18	2·96	12·41	1·51	0·90	0·08
Whitefield...	,,	76·0	0·03	1·60	4·69	1·72	4·99	13·03	2·75	1·07	0·05
Oldham	Dr. J. B. Wilkinson, M.O.H.	42·0	0·27	5·06	12·90	1·56	3·12	22·10	1·21	0·88	0·10
Newcastle-on-Tyne	Dr. H. Kerr, M.O.H.	47·0	0·07	2·97	5·03	0·76	1·51	10·33	1·30	0·22	0·07
Sheffield—											
Attercliffe Burial Ground	Prof. W. P. Wynne, The University.	30·0	0·69	3·16	10·21	1·42	5·51	20·99	2·50	1·12	0·07
Hillsborough Park	,,	39·0	0·10	0·28	2·71	0·76	2·62	6·45	1·43	0·81	0·07
Meersbrook Park	,,	31·0	0·42	0·45	2·60	0·87	3·03	7·37	1·35	0·56	0·04
Weston Park	,,	41·0	0·40	0·89	4·15	1·22	2·64	9·30	1·55	0·60	0·06
York...	Dr. E. M. Smith, M.O.H.	27·0	0·05	1·69	3·22	0·76	1·31	7·02	0·88	0·33	0·18
SCOTLAND—											
Greenock	Mr. James Devine, Sanitary Inspector.	58·0	0·06	1·50	3·61	0·69	1·50	7·37	0·74	0·29	0·05
Leith	Mr. Thomas Bishop, Sanitary Inspector.	13·0	0·03	0·91	1·79	0·20	0·80	3·74	0·49	0·09	0·03
Paisley	Mr. W. W. Kelso, Sanitary Inspector.	43·0	0·12	3·62	4·04	2·23	1·55	11·56	0·99	0·40	0·05

Col. 4 includes all matter insoluble in water but soluble in CS_2. Col. 5 includes all combustible matter insoluble in water and in CS_2. Col. 6 includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9 lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) one gramme per sq. metre; (*d*) 1/1000 millimetre of rainfall (see Col. 3).

The analytical work involved in the above return was undertaken respectively by J. F. Liversedge, F.I.C., Birmingham; Harry Hurst, B.Sc., F.I.C., Bolton; F. Southerden, B.Sc, F.I.C., Exeter; A. R. Tankard, F.I.C., Kingston-upon-Hull; W. H. Roberts, M.Sc., F.I.C., Liverpool; S. A. Vasey, F.I.C., Director, THE LANCET Laboratory (London Meteorological Office collections); J. H. Coste, F.I.C. (Embankment Gardens, Finsbury Park, Ravenscourt Park, Southwark Park, Wandsworth Common, Victoria Park collections), London; F. L. Teed, D.Sc., Golden-lane, London, E.C.; C. C. Duncan, F.I.C., Malvern; E. Knecht, Ph.D., M.Sc., Cheadle Davyhulme, Fallowfield, School of Technology, University, Whitefield (Manchester collections); J. J. Dunn, D.Sc., Newcastle-on-Tyne; Professor W. P. Wynne, Attercliffe Burial Ground, Hillsborough Park, Meersbrook Park, Weston Park (Sheffield collections); S. H. Davies, M.Sc., York; J. W. Biggart, F.I.C., Greenock; A. Scott Dodd, B.S., F.I.C., Leith and Paisley. The correspondents referred to in col. 2 are for the most part public health authorities.

Corrections.—In the June report from Leith the results were returned in error in grains instead of grammes, and the following corrections should be applied: Col. 4, for 0·70 read 0·05; Col. 5, for 19·20 read 1·24; Col. 6, for 35·87 read 2·32; Col. 7, for 21·82 read 1·41; Col. 8, for 7·27 read 0·47; Col. 9, for 84·92 read 5·50; Col. 10, for 8·26 read 0·54; Col. 11, for 5·08 read 0·33; Col. 12, for 1·39 read 0·09.

In the June and July returns the figures for ammonia recorded for the Meteorological Office collections are based upon total nitrogen found. In subsequent returns they refer to free ammonia only.

In the May returns the figure given for ammonia at Greenock should read 0·08 not 0·82 as printed.

UNIVERSITY OF LONDON.—At the last meeting of the Senate, with the acting Vice-Chancellor Sir Alfred Pearce Gould in the chair, it was resolved to express to the Vice-Chancellor profound sympathy on the death of his son, Captain G. W. Herringham, killed in action. Among various resolutions which were passed in respect of the war was one to the effect that during the continuance of the war only the Second Examination for medical degrees, Part I., should be held in December as well as in March and July. The resignation by Dr. David Waterston of the professorship of anatomy in King's College was reported. Dr. George C. Low was recognised as a teacher of tropical medicine at the London School of Tropical Medicine, and Mr. R. Foster Moore as a teacher of ophthalmology at the Royal London Ophthalmic Hospital. The Vice-Chancellor (and, during his absence at the seat of war, the acting Vice-Chancellor) was elected chairman of the site and accommodation committee. Dr. M. S. Pembrey was appointed an internal examiner in physiology for medical degrees. Dr. Sidney Phillips and Professor Albert Carless were appointed to act as examiners in the December examinations for the M.D. and M.S. degrees, in the absence of Dr. H. D. Rolleston and Mr. F. F. Burghard respectively, who are absent on military duty. Dr. S. L. Box was nominated for reappointment as a member of the Ealing Education Committee.—At a meeting of the University of London Lodge of Freemasons held on Nov. 12th Dr. Sydney Russell Wells was installed as the thirty-first Master of the lodge.—The first annual general meeting of the members of the University of London Club will be held at the Club House, 21, Gower-street, W.C., on Wednesday next, Dec. 16th, at 8.30 P.M.

THE WAR REFUGEES' CAMP AT EARL'S COURT.

IN THE LANCET of Sept. 26th and Oct. 3rd our Special Sanitary Commissioner described the early arrangements which were made by the Metropolitan Asylums Board on behalf of the Local Government Board for dealing with the large number of Belgian war refugees reaching England at that time from Antwerp. His experiences at Tilbury and the Alexandra Palace showed clearly that the very difficult problem of receiving and disposing of our poorer guests of war had even then been taken in hand with great thoroughness. It will be remembered that the duty of providing reception hostels for the temporary housing of refugees, as well as the registration of refugees, was entrusted by the Local Government Board early in September to the Metropolitan Asylums Board, who readily placed at the disposal of the Government their machinery for dealing with large numbers of persons in an orderly fashion. In the 12 weeks which have since elapsed over 40,000 refugees have been temporarily cared for in this manner. Our Commissioner described the first beginnings of the scheme and carried the story up to what may be called, in military language, the occupation of the Alexandra Palace.

From this point until after the fall of Ostend on Oct. 15th a continuous torrent of war refugees passed through the Palace. The average daily number of admissions was about 500, while on Oct. 12th some 1200 persons were received between 1.30 and 3.30 A.M., and again when the refugee ship *Admiral Ganteaume* was torpedoed in the Channel on Oct. 26th more than 1900 persons were brought to London and admitted at the Alexandra Palace after midnight. The growing influx of destitute persons from Belgium soon made it apparent that further accommodation would be needed. Two more refugee hostels at Streatham and Edmonton were opened, and on Oct. 13th negotiations were concluded for the use of the Earl's Court Exhibition premises. The "Sunny Spain" Exhibition was closed, the buildings were cleared, and staff and equipment were collected with all speed, with the result that on the evening of the day when possession was given 1400 refugees were received between 9 and 11 P.M., and were fed and housed. The adaptation of the buildings for winter use under the name of the War Refugees' Camp has since proceeded, and there is now accommodation for 3000 persons. Using this camp as a clearing-house, it has been found possible to deal with parties arriving at all hours of the day and night to the number of 2000 persons a week. Few refugees stay at Earl's Court more than six or seven days before being drafted in small groups into various parts of the country through the organisation provided by the War Refugees Committee. In all, more than 11,000 beds were provided by the Metropolitan Asylums Board within a few weeks, and there is still room for some expansion in an emergency; but up to the present the largest number of persons dealt with in one day has been 9170. The forthcoming arrival of 25,000 more Belgian refugees from Holland will, however, increase the demand for beds.

On Sunday last a representative of THE LANCET was given an opportunity of inspecting the new Earl's Court, which has most ingeniously been transformed into an immense caravanserai. The large exhibition buildings have been broken up by screening into small dormitories. In the vast amphitheatre of the Empress Hall 1000 beds are ranged on the lofty galleries, rising from the floor, tier upon tier, to a height of 50 feet, and presenting a remarkable sight, while the subdivision of the western arcade into rooms and cubicles offers cosier accommodation for the women and children. Each refugee is provided with a bedstead, mattress, pillow, two sheets, and four blankets, and nearly 7000 of these outfits have been purchased in addition to utilising large stocks already in the Board's possession. The floor space of the Empress Theatre provides dining accommodation at clean white covered tables for over 3000 at one sitting. With the advent of winter the heating of the buildings has been undertaken, the Empress Theatre by a hot-air system and the rest of the buildings by gas radiators.

The arrangements at the War Refugees Camp, where for the present all refugees are being received, may be taken as typical. The camp is reached by special motor-buses detailed for the transport of the refugees from the London termini at which they arrive, or by special train to the West London Extension Station when particularly large numbers come. On entering the camp the baggage, including bundles of all kinds and sizes, is stored in the Princes Hall, the visitors are given a liberal supply of hot coffee and bread and butter, or a meat meal when required, and are put to bed. Next morning the refugees present themselves at the registration office, where name, age, sex, residence in Belgium, and occupation are recorded, and these particulars are subsequently forwarded to the Registrar-General at Somerset House for inclusion in a great central register of refugees. For this work, as well as for general service as interpreters, a staff of trilingual Belgians has been retained.

A large clothing depôt, well stocked by generous gifts, is served by voluntary workers, and from these the guests are supplied with enough to reach their several destinations in comfort. The local public baths, again, have been available for the refugees, and hundreds have proceeded there daily, but with the advent of colder weather a large bathroom is being fitted up in the exhibition. The sanitary accommodation generally is quite adequate for the needs of the camp; indeed, to the Flemish peasant the water-closets must seem more than palatial. The whole place is kept scrupulously clean and tidy. A large crèche equipped with cots and cradles affords opportunities for mothers to leave their babies in the care of trained nurses, while the Welcome Club has been adapted for use as a hospital.

The permanent staff of the Metropolitan Asylums Board has been largely drawn on for the administration of these great hostels. At the War Refugees Camp, in addition to Mr. G. A. Powell, the officer in charge, there are three resident medical men, a matron, and a staff of trained nurses. The extent of this work and the labours of those associated in the administration and working of these refuges are little known, and have received but passing attention in the stress and anxieties of the military campaign, but they will prove to be not the least important part played by this country in the European crisis, and will result in the building up of lasting ties of friendship with the allied nations and especially with our gallant Belgian friends. A gratifying feature of the work is the constant receipt by the officer in charge of touching letters of thanks for the welcome they have received in the camp and for the generous hospitality of the English nation from refugees of every social class, while equally pleasing to the officials engaged in the work have been the visits and appreciation of distinguished Belgians, including their Queen.

THE SERVICES.

ROYAL NAVAL VOLUNTEER RESERVE.

THE following appointments have been notified:—Surgeon: A. G. L. Reade to the *Pembroke*, for R.N. Barracks. Surgeon Probationers: T. R. F. Kerby, J. M. Harrison, S. E. G. Elliott, T. J. Lane, and G. S. Barnett, all to the *St. George*, additional, for the *Albatross*, *Earnest*, *Panther*, *Quail*, and *Seal* respectively; and G. E. Mullins to the *Leander*, additional, for the *Orwell*.

ARMY MEDICAL SERVICE.

Sir Berkeley George Andrew Moynihan to be temporary Colonel (dated Nov. 28th).

ROYAL ARMY MEDICAL CORPS.

John Hall Edwards to be temporary Major (dated Dec. 1st). Guy Neville Stephen is granted temporarily the honorary rank of Major (dated Dec. 8th). William Rees Thomas is granted temporarily the honorary rank of Captain (dated Dec. 9th). Hugh Leonard Burton is granted temporarily the honorary rank of Lieutenant (dated Dec. 9th).

The undermentioned to be temporary Lieutenants:—Dated Nov. 21st: Charles Henry Fennell, George Jackson Wilson, Albert Ernest Salkeld, and Horace Simeon Berry. Dated Nov. 23rd: George Louis Atkinson, Lionel Cecil Ferguson, Alexander George Higgins, Arthur Gilbert Michelsen Middleton, and Charles Joseph Singer. Dated Nov. 24th: Donald Clark, Henry William Teague, James Matheson, Edward Harold Hertslet Granger, and Fred Alfred Risdon Hacker.

SUPPLEMENTARY TO REGULAR UNITS OR CORPS.

Royal Army Medical Corps.

To be Lieutenants on probation:—Leo Basil Clyde Marksman, Thomas Sheedy, Alexander Guthrie Semple Wallace,

William Muir Dickson, James Learmont McBean, Frank Montague Barnes, Douglas Noel Macleod, Thomas Gordon Fleming, James Swan, and Richard Patrick Starkie.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned Lieutenants are confirmed in their rank:—Alan Cecil Perry, Harry Evans, Basil William Brown, Arthur Patrick Kennedy, Claud Aldous Slaughter, Stanley Wall Hoyland, Joseph Harold Baird, Thomas Ottiwell Graham, Owen Hairsine, Raymond John Clansen, George Albert Cole, Richard O'Kelly, Clive Alan Whittingham, Albert Frederick Leopold Shields, Frederick McKibbin, Thomas Macnaughton Davie, Campbell McNeill Cormack, John Gray Ronaldson, Hubert Charles George Pedler, Robert Lister Horton, John Alston, Charles Robertson McIntosh, John Cameron, James Couper Brash, Francis George Macnaughton, William McMeekin Chesney, William Walker, David Murdoch Marr, John McCallum Orme, John Alexander O'Driscoll, Ivan Millar Pirrie, Edgar Stanley Rowbotham, John Forbes William Sandison, Idris David Evans, Patrick Walsh, Thomas William Clarke, John Cullenan, Francis Dighton Annesley, Ian Dishart Suttie, Henry Cuthbert Bazett, George Perkins, Cyril James Anthony Griffin, Frank Cook, Francis Henry Guppy, Robert Ellis, Francis Gerald Augustus Smyth, Clifford William Sparks, Harry Edmund Creswell, Richard Amyas Preston, Arthur Bennet Preston, Albert George William Compton, Charles Hamblin Thomas, William Campbell Mackie, Charles Dudley Maybury Buckley, Frank Percy Freeman, Henry Searle Baker, Frank Crosbie, Francis Arthur Belam, Austin Smith, Ernest Andrews Dyson, Hamilton Barrett Goulding, William Ernest Tyndall, Walter Vincent Tothill, Harry Nield, Cyril Armstrong, Norman Lockhart Joynt, Hugh Spear Pemberton, Peter Francis Ward, William John Adie, William Somerset Birch, Alexander James Ewing, Harold Emerson Rose, Richard Naunton Ouseley Moynam, Morgan Joseph Bernard Francis Burke-Kennedy, John Victor Livingstone Grant, George Guthrie Marshall, Leonard Foster Browne, Cuthbert Hastings Attenborough, Harold James Stons Morton, Reginald Heber Leigh, George Martin Chapman, James Bethune Scott, John Prosser Davies, David William John, Joseph Bannister Williamson, John Clark Pyper, Geoffrey Ward Wood, Timothy Francis Hegarty, Bernard Murphy, William Henry Wood, Henry Alphonsus Harbison, Cyril Popham, Robert Hay, Claude Joscelyn Delabere May, Charles Frederick Hacker, James Kenworthy Johnston Haworth, Laurence Heber Warneford Iredale, Cedric Overton Shackleton, Thomas Copeland Storey, George Henry Chavasse Mold, John Newton McIntosh, John Howard Owen, Alexander Boyd Foot, James Lanigan, Jeremiah John Magner, Gerald Conroy Dixon, Charles Frank Burton, Lionel Arthur Lewis, John Prince Stallard, Patrick Joseph Corcoran, and Walter Armstrong Elliott.

The undermentioned to be Lieutenants on probation:—James Bryan Fotheringham, Cecil Spurling Staddon, Robert Ievers Sullivan, Johan Frederick van der Westhuyzen, Andrew Russell Ross, Claude Henry Fischel, Frederick Martin Lipscomb, Harry Prust Rudolf, Robert William Skinner Murray, William Herron Elliott, Gifford Traill van der Vyver, and Allan Beresford Hawkins.

TERRITORIAL FORCE.

Sussex Yeomanry: Surgeon-Lieutenant John R. Steinhaeuser is seconded.

Army Medical Services.

Lieutenant-Colonel Walter C. Beevor, C.M.G., Deputy Assistant Director of Medical Services, to be Assistant Director of Medical Services to a Territorial Division, with the temporary rank of Colonel.

Colonel Damer Harrisson, Retired List, Territorial Force, to be an Assistant Director of Medical Services to a Territorial Division, with the rank of Colonel.

Royal Army Medical Corps.

North Midland Mounted Brigade Field Ambulance: The undermentioned to be Lieutenants: Fred Hollway Davies and Samuel Acheson (late Cadet Lance-Corporal, Belfast University Contingent, Senior Division, Officers Training Corps).

2nd Highland Field Ambulance: Captain David Rorie to be Major. Captain Charles Cameron to be Major (temporary). Robert Tennant Bruce to be Lieutenant.

3rd Highland Field Ambulance: George McConnell to be Lieutenant.

1st North Midland Field Ambulance: Alexander Fordyce to be Lieutenant.

2nd North Midland Field Ambulance: The undermentioned to be Lieutenants: Henry Price Malcolm and Robert John McConnell.

1st West Riding Field Ambulance: Captain Walter Lister to be Major (temporary). John H. Blackburn and John Pinder to be Lieutenants.

3rd West Riding Field Ambulance: William Wilfred James Lawson to be Lieutenant.

1st Eastern General Hospital: Michael George Foster (late Surgeon-Captain, 2nd Volunteer Battalion, Royal Fusiliers (City of London Regiment)), to be Captain. Lieutenant John Herbert Owens, from Attached to other than Medical Units, to be Lieutenant.

1st Scottish General Hospital: Officers whose services will be available on mobilisation: Harold Edgar Smith to be Captain. Captain James Smart to be Major.

1st Western General Hospital: Robert William MacKenna to be Captain.

1st South Midland Mounted Brigade Field Ambulance: To be Lieutenants: James Howard Wilkinson and George Christie Soutter.

South-Eastern Mounted Brigade Field Ambulance: Captain James Hamilton, from Attached to Units other than Medical Units, to be Major.

1st South-Western Mounted Brigade Field Ambulance: Philip Woodgate Mason to be Lieutenant.

4th London Field Ambulance: Lieutenant Alfred M. Hughes, from the 6th London Field Ambulance, to be Lieutenant.

3rd Northern General Hospital: Major George H. Pooley, from the Permanent Personnel, to be Major, whose services are available on mobilisation. Captain Arthur G. Yates, from the list of officers whose services are available on mobilisation, to be Registrar, vice Major Pooley, who resigns that appointment.

3rd East Lancashire Field Ambulance: Major William R. Matthews to be Lieutenant-Colonel (temporary).

1st West Lancashire Field Ambulance: Lieutenant-Colonel David Smart, from Sanitary Service, to be Lieutenant-Colonel (temporary).

2nd West Lancashire Field Ambulance: Brigade-Surgeon-Lieutenant-Colonel William J. Fleetwood, Retired List, Territorial Force, to be Lieutenant-Colonel (temporary).

3rd West Lancashire Field Ambulance: Major and Honorary Lieutenant-Colonel Ernest W. Barnes, from Attached to Units other than Medical Units, to be Lieutenant-Colonel (temporary). Lieutenant Mitchell I. Dick to be Captain.

1st Welsh Field Ambulance: Vaughan Bateson to be Lieutenant.

2nd Western General Hospital: The undermentioned to be Captains: Herbert Lund, Robert Ollerenshaw (late Surgeon-Captain, 4th Volunteer Battalion, The Cheshire Regiment).

1st London (City of London) Sanitary Company: Major Lewis T. F. Bryett is seconded.

1st London (City of London) Field Ambulance: James Patrick Nunan Casey to be Lieutenant.

1st East Anglian Field Ambulance: Captain Francis Ward to be Major (temporary).

3rd Home Counties Field Ambulance: Charles Edward Milnes Hey to be Lieutenant.

1st Lowland Field Ambulance: Captain William Bryce to be Major.

Northumbrian Clearing Hospital: To be Lieutenants: Arthur Sutcliffe and Robert Rutherford Lishman.

6th London Field Ambulance: The undermentioned Captains to be Majors (temporary): Henry King Dawson and John Wilfred Bird.

2nd London Clearing Hospital: Captain Frederick W. Higgs to be Major.

5th (Cinque Ports) Battalion, The Royal Sussex Regiment: Surgeon-Lieutenant Peter M. Waugh to be Surgeon-Captain.

Supernumerary for Service with Officers Training Corps.—John P. Kinloch to be Lieutenant, and John E. MacIlwaine to be Lieutenant for service with the medical unit, Belfast University Contingent, Senior Division Training Corps.

Attached to Units other than Medical Units.—Russell Eliott Wood (late Surgeon Lieutenant-Colonel, Lanarkshire Yeomanry) to be Lieutenant-Colonel. To be Majors: Captain Horace C. Colman, Captain James C. Taylor, Captain Thomas W. Banks, and Captain William J. Mackinnon. To be Captains: Lieutenant James A. Simpson, Surgeon-Captain George P. Chappel (from the 7th Battalion, The Duke of Cambridge's Own (Middlesex Regiment)), Lieutenant Robert H. Shaw, Captain Alexander Graham (from the 3rd East Anglian Field Ambulance, Royal Army Medical Corps), Lieutenant George B. Brand, Lieutenant Percy R. Bolus, Lieutenant Robert Paterson, and Lieutenant J. O. Summerhayes. To be Lieutenants: George Herbert Dominy, William Henry Hender Bennett (late Surgeon-Lieutenant, 1st Volunteer Battalion The King's Own (Yorkshire Light Infantry)), William Robertson, John Kendall Syms, Arthur Samuel Walker, George Edward Gray Mackay, Daniel Durward Brown, Huntly Nevins Pelly, William Layard Griffiths, David Edward Evans, and Thomas Pearson Caverhill.

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

The undermentioned Lieutenant-Colonels, from the 2nd

Northern General Hospital, Royal Army Medical Corps, to be Lieutenant-Colonels: Thomas Churton and Thomas P. Teale.

Surgeon-Captain Reginald C. Gayer, from the Surrey (Queen Mary's Regiment) Yeomanry, to be Captain.

We are asked to state that the marks sent to us for publication against Surgeon F. C. Hunot's name in the list of successful candidates for the Acting Surgeons' Examination (*vide* THE LANCET, Nov. 28th, p. 1267) are those obtained at the Entrance Examination for the Naval Medical Service, when he obtained first place, he having been prevented by illness from attending the Greenwich course and from competing at the subsequent examinations.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 97 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7703 births and 5329 deaths were registered during the week ended Saturday, Dec. 5th. The annual rate of mortality in these towns, which had been 13·0, 14·3, and 16·6 per 1000 in the three preceding weeks, declined in the week under notice to 15·3 per 1000 of their aggregate population, estimated at 18,120,059 persons at the middle of this year. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 14·1, against 14·4 per 1000 in the metropolis. Among the several towns the death-rate last week ranged from 4·9 in Acton, 7·5 in Gillingham, 8·4 in Eastbourne, 8·5 in Enfield, and 8·6 in Ilford and in Bournemouth to 20·0 in Bath and in Newcastle-on-Tyne, 20·3 in West Bromwich, 21·1 in Stockton-on-Tees, 21·6 in Plymouth, and 24·7 in Gloucester and in Rotherham.

The 5329 deaths from all causes were 431 fewer than the number in the previous week, and included 439 which were referred to the principal epidemic diseases, against 440 and 448 in the two preceding weeks. Of these 439 deaths, 155 resulted from measles, 99 from diphtheria, 94 from infantile diarrhœal diseases, 48 from whooping-cough, 30 from scarlet fever, and 13 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·3 per 1000, and coincided with that recorded in each of the three preceding weeks. The deaths attributed to measles, which had been 167, 148, and 174 in the three preceding weeks, fell to 155 last week, and caused the highest annual death-rates of 1·4 in Smethwick, in Bolton, and in Huddersfield, 1·7 in Wigan and in Gateshead, 2·0 in Wakefield, 2·2 in Edmonton, 2·3 in Northampton, 2·4 in Rotherham, 2·7 in Grimsby, and 4·2 in Newcastle-on-Tyne. The deaths referred to diphtheria, which had been 58, 74, and 77 in the three preceding weeks, further rose to 99 last week; this was the highest number of deaths recorded from this cause in any week of the current year, and included 30 in London, 10 in Birmingham, 6 in Liverpool, 4 in Hull, and 3 each in Willesden, West Ham, Great Yarmouth, and Sheffield. The fatal cases of diarrhœa and enteritis (among infants under two years), which had been 131, 138, and 102 in the three preceding weeks, further fell to 94 last week, of which 30 occurred in London, 8 in Liverpool, and 4 each in Manchester and Newcastle-on-Tyne. The deaths attributed to whooping-cough, which had been 39, 35, and 42 in the three preceding weeks, further rose to 48 last week, and included 9 in London, 5 in Rhondda, and 3 in Bristol. The deaths referred to scarlet fever, which had been 42, 28, and 42 in the three preceding weeks, fell to 30 last week, of which 10 were registered in London, 4 in Manchester, and 2 each in Birmingham, Liverpool, Oldham, Gateshead, and Newcastle-on-Tyne. The fatal cases of enteric fever, which had been 17, 17, and 11 in the three preceding weeks, were 13 last week, and included 2 each in Wigan and Newport (Mon.).

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily increased from 3071 to 5005 in the 15 preceding weeks, had declined to 4980 on Saturday last; 537 new cases were admitted during the week, against 751, 627, and 623 in the three preceding weeks. These hospitals also contained on Saturday last 1671 cases of diphtheria, 61 of enteric fever, 49 of whooping-cough, and 47 of measles, but not one of small-pox. The 1325 deaths from all causes in London were 99 fewer than the number in the previous week, and corresponded to an annual death-rate of 15·3 per 1000. The deaths referred to diseases of the respiratory system, which had been 181, 203, and 324 in the three preceding weeks, fell to 312 in the week under notice, but were 51 above the number recorded in the corresponding week of last year.

Of the 5329 deaths from all causes in the 97 towns, 198 resulted from different forms of violence and 411 were the subject of coroners' inquests, while 1489 occurred in public institutions. The causes of 44, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Leeds, Bristol, Bradford, Hull, and in 61 other smaller towns. Of the 44 uncertified causes of death, 13 were registered in Birmingham, 9 in Liverpool, 3 each in Portsmouth, Leicester, and South Shields, and 2 in Barrow-in-Furness.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,293,200 persons at the middle of this year, 1043 births and 803 deaths were registered during the week ended Saturday, Dec. 5th. The annual rate of mortality in these towns, which had been 15·2, 16·6, and 18·4 per 1000 in the three preceding weeks, slightly fell to 18·3 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 16·1, against 14·1 per 1000 in the 97 large English towns. Among the several towns the death-rate ranged from 9·5 in Hamilton, 12·3 in Perth, and 12·5 in Falkirk, to 22·9 in Leith, 23·6 in Ayr, and 25·0 in Kilmarnock.

The 803 deaths from all causes were 5 fewer than the number in the previous week, and included 79 which were referred to the principal epidemic diseases, against numbers increasing from 50 to 82 in the three preceding weeks. Of these 79 deaths, 30 resulted from whooping-cough, 20 from diphtheria, 15 from scarlet fever, 10 from infantile diarrhœal diseases, 2 from measles, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·8, against 1·3 per 1000 in the 97 large English towns. The deaths attributed to whooping-cough, which had been 7, 13, and 25 in the three preceding weeks, further rose to 30 last week, of which 25 were registered in Glasgow and 3 in Dundee. The deaths referred to diphtheria, which had been 7, 17, and 13 in the three preceding weeks, rose to 20 last week, and included 7 in Glasgow, 5 in Aberdeen, 3 in Edinburgh, and 2 in Kirkcaldy. The fatal cases of scarlet fever, which had been 8, 16, and 25 in the three preceding weeks, fell to 15 last week; 6 deaths occurred in Glasgow, 4 in Aberdeen, and 2 in Leith. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had declined from 31 to 10 in the six preceding weeks, were again 10 last week, of which 4 were recorded in Glasgow, 3 in Dundee, and 2 in Aberdeen. The 2 deaths referred to measles occurred in Glasgow, and the fatal cases of enteric fever in Glasgow and Coatbridge.

The deaths referred to diseases of the respiratory system, which had steadily increased from 62 to 163 in the 11 preceding weeks, were again 163 in the week under notice; 34 deaths resulted from different forms of violence, against 26 and 39 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,205,280 persons at the middle of this year, 549 births and 464 deaths were registered during the week ended Saturday, Dec. 5th. The annual rate of mortality in these towns, which had been 17·7, 18·3, and 19·4 per 1000 in the three preceding weeks, further rose to 20·1 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 17·4, against corresponding rates of 14·1 and 16·1 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 24·5 in Dublin (against 15·3 in London and 19·1 in Glasgow), 21·2 in Belfast, 14·3 in Cork, 10·1 in Londonderry, 25·7 in Limerick, and 13·3 in Waterford, while in the 21 smaller towns the mean death-rate did not exceed 13·5 per 1000.

The 464 deaths from all causes were 15 in excess of the number in the previous week, and included 42 which were referred to the principal epidemic diseases, against 44 and 40 in the two preceding weeks. Of these 42 deaths, 12 resulted from infantile diarrhœal diseases, 8 from measles, 8 from scarlet fever, 6 from diphtheria, 4 from enteric fever, and 4 from whooping-cough, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·8, against corresponding rates of 1·3 and 1·8 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 10, 13, and 10 in the three preceding weeks, rose to 12 last week, of which 5 were recorded in Belfast and 4 in Dublin. The deaths referred to measles, which had been 9, 10, and 14 in the three preceding weeks, fell to 8 last week, and were all registered in Belfast. The fatal cases of scarlet fever, which had been 14, 12, and 10 in the three preceding weeks, further declined to 8 last week, and included 3 in

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING NOVEMBER, 1914.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1914.	NOTIFIED CASES OF INFECTIOUS DISEASE.												DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.†
LONDON	4,516,612	—	2754	914	1	59	1	47	527	2	10	4315	12·5	—	158	38	80	34	12	147	469	1·4	5045	14·6
West Districts.																								
Paddington	142,055	—	114	30	—	—	1	—	18	—	—	163	15·0	—	—	1	1	2	1	11	16	1·5	152	13·8
Kensington	170,817	—	99	28	—	—	—	1	15	1	—	144	11·0	—	2	—	2	—	1	3	8	0·6	177	13·4
Hammersmith	124,750	—	137	36	—	2	—	1	5	—	—	181	18·9	—	11	—	3	4	—	6	24	2·5	156	16·1
Fulham	158,849	—	121	34	—	2	—	4	16	—	—	177	14·5	—	7	2	3	1	—	4	17	1·4	142	12·1
Chelsea	63,791	—	19	6	1	3	—	—	1	—	—	30	6·1	—	1	2	1	—	—	2	6	1·2	70	13·6
City of Westminster	152,346	—	92	15	—	11	—	—	13	—	—	131	11·2	—	—	4	1	—	—	7	12	1·0	175	15·8
North Districts.																								
St. Marylebone	112,892	—	40	40	—	3	—	—	8	—	—	91	10·5	—	—	1	3	1	1	1	7	0·8	117	13·8
Hampstead	86,731	—	24	18	—	2	—	—	3	—	2	49	7·4	—	—	2	3	—	—	—	5	0·8	83	13·2
St. Pancras	212,497	—	128	48	—	4	—	1	17	—	—	198	12·1	—	9	2	3	1	—	8	23	1·4	267	16·4
Islington	324,764	—	186	62	—	2	—	—	33	—	3	286	11·5	—	10	4	7	1	1	10	33	1·3	368	14·4
Stoke Newington	50,454	—	33	7	—	—	—	1	10	—	—	51	13·2	—	—	—	—	—	—	1	1	0·3	56	13·8
Hackney	223,724	—	88	47	—	3	—	2	38	—	—	178	10·4	—	30	—	2	1	1	8	42	2·4	245	14·4
Central Districts.																								
Holborn	45,861	—	8	4	—	1	—	—	—	—	—	13	3·7	—	1	—	—	1	1	—	3	0·9	61	17·4
Finsbury	83,212	—	55	13	—	—	—	4	15	—	—	87	13·6	—	1	—	—	2	—	10	13	2·0	129	20·0
City of London	17,129	—	4	7	—	—	—	—	2	—	—	13	9·9	—	—	—	1	—	1	—	2	1·5	15	11·9
East Districts.																								
Shoreditch	108,869	—	66	13	—	—	—	1	17	—	—	97	11·6	—	8	1	—	2	—	6	17	2·0	153	18·9
Bethnal Green	127,662	—	77	31	—	—	—	1	24	—	1	134	13·7	—	5	—	4	3	—	9	21	2·1	156	16·5
Stepney	273,265	—	310	116	—	6	—	6	40	—	1	479	22·8	—	20	1	8	—	—	6	35	1·7	312	15·5
Poplar	160,222	—	60	35	—	4	—	6	25	—	1	131	10·7	—	3	—	6	—	—	6	15	1·2	192	15·4
South Districts.																								
Southwark	186,941	—	117	26	—	—	—	4	32	—	—	179	12·5	—	15	1	5	2	—	4	27	1·9	247	17·3
Bermondsey	124,213	—	34	15	—	1	—	1	25	—	—	76	8·0	—	6	1	3	1	—	6	17	1·8	166	17·4
Lambeth	296,724	—	152	49	—	4	—	—	36	—	—	243	10·7	—	8	3	4	5	2	6	28	1·2	346	14·9
Battersea	167,338	—	124	24	—	2	—	2	19	—	—	171	13·3	—	8	4	1	—	—	9	22	1·7	173	13·6
Wandsworth	338,998	—	153	54	—	4	—	5	19	1	1	237	9·1	—	6	4	6	3	—	8	27	1·0	294	11·4
Camberwell	262,020	—	171	31	—	1	—	3	33	—	1	240	11·9	—	4	—	4	1	—	6	15	0·7	290	14·2
Deptford	109,182	—	88	30	—	—	—	—	15	—	—	133	15·9	—	—	2	6	1	—	7	16	1·9	139	16·4
Greenwich	96,037	—	68	32	—	2	—	1	10	—	—	113	15·3	—	—	1	1	1	2	—	5	0·7	111	14·9
Lewisham	172,433	—	117	28	—	2	—	1	18	—	—	166	12·5	—	1	—	1	—	1	2	5	0·4	140	10·4
Woolwich	122,836	—	68	34	—	—	—	2	18	—	—	122	12·9	—	2	2	1	1	—	1	7	0·7	113	12·3
Port of London	—	—	1	1	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex and age constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

Belfast. The deaths attributed to diphtheria, which had been 3, 4, and 2 in the three preceding weeks, rose to 6 last week, of which 3 were recorded in Dublin. The 4 deaths referred to enteric fever were slightly in excess of the average in the earlier weeks of the quarter, and were all registered in Dublin. Of the 4 fatal cases of whooping-cough, which were equal to the average in recent weeks, 2 occurred in Belfast and 2 in Cork.

The deaths referred to diseases of the respiratory system, which had been 67, 85, and 100 in the three preceding weeks, fell to 90 in the week under notice. Of the 464 deaths from all causes, 150, or 32 per cent., occurred in public institutions, and 2 resulted from various forms of violence. The causes of 12, or 2·6 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 97 large English towns the proportion did not exceed 0·8 per cent.

VITAL STATISTICS OF LONDON DURING NOVEMBER, 1914.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 12·5 per 1000 of the population, estimated at 4,516,612 persons in the middle of the year; in the three preceding months the rates were 7·5, 11·6, and 14·0 per 1000 respectively. The lowest rates last month were recorded in Chelsea, Hampstead, Holborn, Bermondsey, and Wandsworth; and the highest rates in Paddington, Hammersmith, Stepney, Deptford, and Greenwich. The prevalence of scarlet fever showed some decrease from the very high point reached in the preceding month; the greatest proportional prevalence was recorded last month in Paddington, Hammersmith, Fulham, Stepney, Battersea, Deptford, Greenwich, and Lewisham. The Metropolitan Asylums Hospitals contained 4956 scarlet fever patients at the end of last month, against 3199, 4157, and 4561 at the end of the three preceding months; the weekly admissions averaged 661, against 414, 598, and 618 in the three preceding months. Diphtheria also was slightly less prevalent in November than it had been in the previous month; the greatest proportional prevalence of this disease was recorded in Hammersmith, St. Marylebone, the City of London, Bethnal Green, Stepney, Deptford, Greenwich, and Woolwich. The Metropolitan Asylums Hospitals contained 1630 diphtheria patients at the end of last month, against 1030, 1296, and 1489 at the end of the three preceding months; the weekly admissions averaged 247, against 128, 188, and 213 in the three preceding months. Enteric fever was rather less prevalent than in any of the three preceding months; the metropolitan boroughs in which the greatest proportional prevalence of this disease was recorded last month were Chelsea, the City of Westminster, St. Marylebone, Hampstead, Stepney, Poplar, and Greenwich. There were 63 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 39, 57, and 65 at the end of the three preceding months; the weekly admissions averaged 8, against 11 in each of the two preceding months. Erysipelas was proportionally most prevalent in Stoke Newington, Hackney, Finsbury, Shoreditch, Bethnal Green, Poplar, Southwark, and Bermondsey. The 47 cases of puerperal fever notified during the month included 6 in Stepney, 6 in Poplar, 5 in Wandsworth, and 4 each in Fulham, Finsbury, and Southwark. The 2 cases of cerebro-spinal meningitis belonged respectively to Kensington and Wandsworth; and of the 10 cases of poliomyelitis 3 belonged to Islington, 2 to Hampstead, and 1 each to Bethnal Green, Stepney, Poplar, Wandsworth, and Camberwell.

The mortality statistics relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex and age constitution of the populations of the several boroughs. During the four weeks ending Nov. 28th the deaths of 5045 London residents were registered, equal to an annual rate of 14·6 per 1000; in the three preceding months the rates had been 12·6, 15·5, and 14·1 per 1000 respectively. The death-rates last month ranged from 10·4 in Lewisham, 11·4 in Wandsworth, 11·9 in the City of London, 12·1 in Fulham, and 12·3 in Woolwich, to 17·3 in Southwark, 17·4 in Holborn and in Bermondsey, 18·9 in Shoreditch, and 20·0 in Finsbury. The 5045 deaths from all causes included 158 from measles, 38 from scarlet fever, 80 from diphtheria, 34 from whooping-cough, 12 from enteric fever, and 147 from diarrhœa and enteritis among children under 2 years of age The lowest death-rates from these infectious diseases were recorded in Kensington, Stoke Newington, Camberwell, Greenwich, Lewisham, and Woolwich; and the highest rates in Hammersmith, Hackney, Finsbury, Shoreditch, and Bethnal Green. The 158 fatal cases of measles were 28 above the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in Hammersmith, Hackney, Shoreditch, Stepney, and Southwark. The 38 deaths from scarlet fever were 18 in excess of the average number; the greatest proportional mortality from this disease was recorded in Chelsea, the City of Westminster, Hampstead, Battersea, Deptford, and Woolwich. The 80 fatal cases of diphtheria were 33 above the average; this disease was proportionally most fatal in St. Marylebone, Hampstead, Bethnal Green, Stepney, Poplar, Southwark, and Deptford. The 34 deaths from whooping-cough were 8 below the average; the highest death-rates from this disease were recorded in Hammersmith, Finsbury, Shoreditch, Bethnal Green, and Lambeth. The 12 deaths from enteric fever were equal to the average, and included 2 in Lambeth and 2 in Greenwich. The mortality from diarrhœa and enteritis among children under 2 years of age was proportionally greatest in Paddington, Finsbury, Bethnal Green, and Deptford. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases was 28·3 per cent. above the average.

HOSPITAL SHIPS AND TYPHOID FEVER AT CALAIS AND DUNKIRK.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THOSE who realise the difficulties and dangers which must be incurred in the hasty removal of the sick and wounded in the vicinity of the fighting line—compare the retirement from Antwerp and Ostend as the enemy was rapidly closing in upon those towns—must naturally commend the idea of hospital ships stationed in seaports near to the fighting line. How useful they would have been is perhaps only realised when their great value has gone, but it is as well to docket experience for future employment. There are objections doubtless, especially structural objections, to hospital ships; but for the moment the question is not what constitutes an ideal hospital, but what is likely to prove most serviceable in war. Now, during the present war the Channel and North Sea ports, from Antwerp to Havre, have all been near to the western battlefields. The great bulk of both the British and the Belgian wounded are brought to Boulogne, Calais, and Dunkirk. They were not, however, kept on board floating hospital ships, but were brought over at once to England unless considered too seriously injured to endure the sea journey. The question that may fairly be mooted is whether there is not room for hospital ships in this organisation. With the approach of winter, and in spite of all the care taken, the amount of sickness will increase, and although, so far as our own troops are concerned, the general health is good, yet as the number of surgical cases has declined the number of medical cases has gone up. The inclement exposure and the necessary conditions of trenches in winter-time must favour the spread of many pathological conditions, and as the cases grow more numerous the desirability of separating the sick from the wounded becomes more pressing. Now when it is a question of receiving the wounded, whether British or foreign, and distributing them throughout the whole country, the difficulty is a more circumscribed one than that caused by the arrival on these shores of a large number of sick. Not only will there be cases among them that could ill-support the sea journey—that has occurred among the wounded—but there will be cases that have not been diagnosed and others whose reception must be guarded by public health precautions.

Hospital Ship for the Sick at Dunkirk.

The question has been already debated, although in the stress of events it has attracted no public attention. When during the month of November the Wounded Allies Relief Committee sent a deputation over to Dunkirk, they discussed this matter with the Belgian Minister of War, Baron de Broqueville. It was then generally agreed that it would be preferable not to send the sick soldiers to England but to treat them in France. Surgeon-General Mellis was very emphatic on the advantage of having a hospital ship in Dunkirk harbour. This was within 15 to 20 miles from the trenches defended by the Belgian troops. If they succeeded in fighting their way back into

Belgium the hospital ship could follow the victorious armies up to Ostend and perhaps eventually even up to Antwerp. But, on the other hand, if the Germans did succeed in breaking through and made a sudden rush on Dunkirk, as they did on Antwerp and Ostend, what a great relief it would be to know that at least the sick were safe, that they need in no wise be disturbed. On the approach of danger steam should be kept up and in a few turns of the screw the hospital ship would be making for the nearest secure haven. The advantages of such an arrangement are obvious, especially to those who have any conception of the ghastly struggle that took place to get the wounded on board the ships at Ostend before the Germans invaded the town. Consequently the deputation on their return from Dunkirk at once brought the whole question before the Admiralty. They suggested that one of the German liners which had been captured might be converted into a hospital ship. To this some objection was made because the legal ownership of these prize ships had not yet been clearly defined. Then there is, it appears, a German boat that was got up to look like a hospital ship, but is supposed to have been employed for the laying of mines. Now there would be a sort of retributive justice if this vessel was converted into a genuine hospital ship. However, on closer examination it was found that this proposal was not very practical. In the interval a former liner has been inspected, and hopes are entertained that it will be possible, without much further loss of time, to convert her into a hospital ship to be stationed in Dunkirk harbour.

Hospital Ship for Typhoid Fever Cases at Calais.

While these negotiations are proceeding another and much graver matter, the presence of typhoid fever in the northern fighting area, has to be considered. At the beginning of the month Major H. Stedman, R.A.M.C., writing to the *Times* from Calais, announced the occurrence of cases of typhoid fever in that city in numbers which seemed to be assuming the proportions of an epidemic. The existence of numerous cases is undoubted, but the extent to which the Belgian army is affected has been exaggerated, authoritative information putting the number of cases in that army at only 120. Still, the danger is present. The civil population in West Flanders and the north-east of France is likely to suffer together with the Belgian army and such French and British troops as may be near at hand unless the preventive measures now being rapidly and drastically undertaken are successful. Major Stedman described some 20 to 30 fresh cases arriving per day at Calais, and made no exaggerated demand when he suggested there should be a hospital ship in the harbour large enough to take at least 300 cases from the town of Calais. The medical correspondent of the *Times* reports that a convent at La Panne has now been secured as an isolation hospital. The joint committee of the British Red Cross Society and the Order of St. John have made a grant of £10,000 to be expended at once, under the direction of Sir Arthur Sloggett, acting as their chief commissioner, and we must all hope that the evil taken in hand quickly will soon be got under.

A Further Effort Needed.

There are ships and to spare lying idle in English docks. Many of them are prize vessels, and if they can be immediately employed for a useful purpose, this being war time, little legal points should not be allowed to stand in the way. If, as seems most probable, a big ship can be converted into a big hospital more rapidly and more cheaply than a new hospital can be built on shore, there should be no hesitation. An epidemic may be as fatal and represent as great an emergency as a decisive battle. When artillery comes into action no delay is allowed so as to ascertain the private property rights that exist within the range of fire. If we have ships that can be used let us use them with equal alacrity. Already the admirable care taken to supply ample food to our troops in the field and to watch over the sanitation of camp and trench has saved thousands of lives. Now a further effort is needed. The heroic but shattered Belgian army has no longer any hospital accommodation remaining, and probably it has not the means of sterilising the water drunk by the brave troops it still keeps in the field. Let us at once and promptly supply both.

All along the line from Nieuport to Ypres, especially in the neighbourhood of Dixmude, the floods that have barred the way to the invaders have emptied cesspits and middens and spread their contents far and wide. In these waters there are also many corpses. According to the uncertain news that reaches us from the German side, typhoid fever already seems to be far more prevalent among our enemies than among our friends. That, however, only adds to the danger on both sides by augmenting the risks of water contamination. Therefore we need at once, and on the largest possible scale, means for sterilising water, for destroying the dejecta of patients, and isolation hospitals.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Tetanus.

THE treatment of tetanus properly engages the attention of the medical world at present, for whatever may be the nature and gravity of wounds in themselves, all alike become, if not incurable, at least very difficult to deal with when they are accompanied by tetanus. At the Académie des Sciences on Nov. 9th the Prince of Monaco read a communication by Dr. Caillaud and Dr. Corniglion on a method recently practised by them in the hospital of Beausoleil on four patients showing symptoms of differing intensity, two mild and two very severe. They had recourse to Baccelli's method of injections of phenol, to which were added intravenous injections of lantol or colloidal rhodium. The phenol was used in a 1 per cent. solution, an intramuscular injection of 40 c.c. to begin with being given daily. This amount was progressively increased to 70 c.c., then decreased after a clear amelioration of the patients' condition. Later the 1 per cent. solution was replaced by a 2 per cent. solution, the doses of which were naturally halved. Of lantol, in the two very grave cases, an intravenous injection of 6 c.c. was made every two days until all danger seemed to be over, in these cases about eight days. The four cases thus treated were cured. The sole inconvenience noted was an indurated erythema following the use of the 2 per cent. solution, which, however, quickly disappeared. The improvement occurred rapidly and progressively, a definitive cure being obtained in from 15 to 20 days. The authors also state that the same treatment practised at Cannes was successful in all of five cases treated.

Medical Life in Paris.

The Académie de Médecine has had before it some very interesting subjects, all naturally having relation to warfare. M. Walther discussed surgical intervention in the injury of nerve trunks of limbs caused by projectiles. He has operated six times. When the pains are very lancinating it is desirable to operate early before cicatrisation of the cutaneous wound. In cases with complete paralysis but without pain it is better to await cicatrisation of the wound. The results of these operations have been very satisfactory. M. Langlet, the heroic mayor of Rheims, has been unanimously elected to the vacant National Associateship at the Académie de Médecine. The Academy was indeed happy thus to testify its admiration for his valiant attitude in the recent misfortunes of the city. On Nov. 24th Dr. Tuffier called attention to the use by Germans of explosive bullets obtained by reversing the bullet in the cartridge, so that the point was in contact with the powder, the flat soft core of the bullet being thus exposed. Bullets thus used are violently explosive on contact with resistance. Their range is of course very much lessened, but

with trenches in close vicinity that is a matter of small importance. Cartridges thus converted have been found in rifles collected on the field and in the pouches of soldiers. M. Terson read a communication on the treatment of wounds of the eye, which have been very prevalent in this war. In it he showed the dangers of certain useful antiseptics when applied to the eye and detailed the necessary precautions. He reported several of his cases of extraction of projectiles, and recommended the suture of wounds of the eye, facilitated by new methods and material, with a view to avoiding ablation of the eye. At the Académie des Sciences M. Laveran dealt with exanthematic typhus and insisted on its prophylaxis, which is very simple. M. Laveran recalled that as typhus was rapidly developing in the German trenches it was necessary when German prisoners were taken to subject them to the necessary hygienic cleanliness, the non-observance of which would threaten the allied lines, which are at present happily free from it. It must be remembered, however, that the Germans use the word "typhus" with or without qualification for enteric fever sometimes. Finally, at the Société de Biologie M. Weinberg has reported some of his studies from the bacteriological point of view into a certain number of cases of gaseous gangrene among the English wounded.

The Diminution of the Birth-rate in France.

The diminishing birth-rate, disquieting as it always is, is more so at the present time, when it has so important a bearing on events. The births fell from 750,651 living children in 1912 to 745,539 in 1913. So low a figure had never been recorded, with the exception of 1911, when it was regarded as deplorable. To estimate the lamentable and continued shrinkage of the French birth-rate it suffices to recall that the annual mean of living births was 945,000 during the period 1872 to 1875, that since 1907 the number of births has fallen below 800,000, and since 1911 below 750,000. That is to say, that in less than 40 years the births in France have diminished by 200,000 a year. The proportion of living children notified to 10,000 inhabitants was 188 in 1913, as against 190 in 1912, 187 in 1911, 196 in 1910, and 205 in 1906. The shrinkage increases year by year. It is true that in all the great countries of Europe the birth-rate is decreasing, but in a much less degree than in France, and, moreover, the annual excess of births over deaths is proportionately from six to ten times greater than in France. Thus, for 1912 the excess of births over deaths per 10,000 inhabitants was in France only 15. In the same year it was in the Low Countries 158, in Italy 140, in Hungary 130, in the German Empire 127, in Austria 107, and in England 105. Last year the excess was 41,901 births, or only 10 per 10,000 inhabitants. The excess of 1912 was 57,911, or 15 per 10,000. There has thus been a diminution of one-third. This diminution springs from a simultaneous deficit of 5112 births and an increase of 10,898 deaths. Last year an excess in births was noted in 49 departments in place of in 56 in 1912. The departments in which the birth-rate exceeds the mortality are those of the Nord, Pas de Calais, Bretagne, the frontier regions of the Nord-Est, Limousin, and Corsica. On the other hand, Normandy and Dauphiny continue to depopulate. The proportion of births per 10,000 inhabitants was 196, as against 198 in 1912. The departments in which the birth-rate was highest were Pas de Calais, 266 children per 10,000 inhabitants; Finistère, 259; Morbihan, 248; Seine-Inférieure, 240; Meurthe and Moselle, 239; Côtes du Nord, 236; Lozère, 219; Doubs, 217; Nord, 216; Mayenne, 213; Vendée, 211; and Vosges, 210. Those in which it was lowest are the Valley of the Garonne and Bourgogne; Gers, 129; Lot et Garonne, 134; Yonne, 137; Nièvre, 141; Allier, 143; Lot, 145; Haute Garonne, 147; Gironde, 148; and Ariège, 149. The number of deaths, 703,638 (stillbirths 31,119 excluded) is greater by nearly 11,000 than that of 1912, which was the lowest recorded since the beginning of the present century. The ratio of deaths for the entire population was 178 per 10,000 inhabitants, as against 172 in 1912, 196 in 1911, and 179 in 1910. The death-rate has risen in 64 departments, and particularly in the Bouches du Rhône, the Dordogne, the Var, Haute Savoie, Corsica, the Somme, Haute Vienne, Aveyron, and Tarn-et-Garonne. The Norman and Breton departments continue among those furnishing the largest proportion of deaths.

Ambulance Barges.

Four ambulance barges, each containing 125 beds, with full necessary equipment, including radiographic installations, moored on the Seine at Paris, were officially inspected and approved on Nov. 26th. These vessels search such districts as they can reach for wounded and transport them to the base hospitals. Each vessel has a complete medical and nursing establishment. They are towed at a rate of 100 kilometres in 24 hours.

Dec. 7th.

Obituary.

WILLIAM OSCAR JENNINGS, M.D. PARIS, M.R.C.S. ENG.

THE death of Dr. Oscar Jennings, formerly of Paris, took place suddenly in Ramsgate on Nov. 23rd, aged 63. He only returned to this country to live in October of last year, after a residence in Paris of about 35 years.

William Oscar Jennings was born in London in 1851. He studied medicine at Guy's Hospital and in 1873 was admitted a Member of the Royal College of Surgeons of England. After qualifying he went to New Zealand, where he practised for two years, but in 1875 he returned to Europe and settled in Paris. He entered the University there, and after passing the necessary examinations graduated as M.D. Paris in 1878, choosing for his thesis the subject of Metallotherapy. He became closely associated with Professor Ball and thus his mind was turned in the direction of mental and nervous diseases. In 1878 he published a comparison of the effects of various forms of treatment in hysteria. In 1882 he translated into French Gowers's "Diseases of the Spinal Cord," and in the following year Weir Mitchell's book on "Neurasthenia." In the meantime he had become a strong supporter of Sayre's mechanical treatment of spinal complaints, a method which at that time found few adherents in France, and published in French a book thereon. In 1887 Dr. Jennings was appointed medical electrician to the Clinique des Maladies Mentales at the Asile Ste. Anne. About the same time he became enthusiastic on the subject of cycling from a hygienic point of view, and in 1888 he published "La Santé par le Tricycle,"

which reached a third edition in the following year. He accomplished much for the popularisation of cycling, both by subduing prejudice and by combating the apprehensions of the profession concerning its possible dangers, especially in regard to women, and his services in this direction were recognised by the Union Velocipédique Française, which awarded him its gold medal.

Of late years Dr. Jennings had devoted himself to the study of the morphia habit, on which he published several books, besides a number of articles in French medical periodicals and in the columns of THE LANCET. The essentials of the method of treatment recommended by him consisted in supporting the heart during the period of enfeeblement that immediately follows withdrawal of the drug, and in the neutralisation of the hyperacidity by sodium bicarbonate. He also called attention to the local erythematous patches and the puffiness of the face that accompany the toxic effect of antipyrin, which is sometimes associated with the taking of even very moderate doses. In 1912 he published in French a very interesting historical and therapeutic essay on the Russo-Turkish bath, and he was engaged upon further literary work on the same subject at the time of his death. During a large part of his residence in Paris he acted as the Special Correspondent to THE LANCET.

Dr. Jennings was buried at Hendon Park Cemetery. He was entitled to sepulture in Père La Chaise, but the circumstances of the war forbade removal of the body to Paris. He leaves a widow and one daughter.

ROYAL HANTS COUNTY HOSPITAL.—At the last quarterly meeting of the Court of Governors it was stated that since the commencement of the war 22 cases of British wounded had been received, 68 wounded Belgians, and 87 cases of accident or illness from the military camp in the neighbourhood of Winchester. Fewer applications for admission had been received from the civil population. An overdraft of £3222 3*s*. 5*d*. was reported, as compared with £2792 19*s*. 10*d*. at the beginning of the quarter.

CIVIL AND MILITARY SANITATION IN THE TROPICS.—The first of two Chadwick public lectures was delivered by Sir Ronald Ross, K.C.B., F.R.S., at the London School of Economics on Dec. 4th, Sir James Crichton-Browne (Chadwick trustee) being in the chair. The lecturer pointed out that the relations between administration and public sanitation had not been completely discussed. The older theory of government, well enunciated by David Hume, was that government had "no other object or purpose but the distribution of justice." This idea had now been abandoned in favour of the view that government should do everything possible for the prosperity of its subjects. The lecturer then traced the history of tropical sanitation. Civilisation had been excluded from large tropical areas such as tropical Africa, largely because grave tropical diseases were present which had not been investigated until recently. The causes and prevention of many of these maladies were now understood; but the question still remained whether public administration could utilise the preventive measures suggested by science. Examining the history of this question, the lecturer pointed out that in the old days medical and sanitary matters were originally in the hands of the priestly caste, many of whose religious injunctions were really of a sanitary nature. In the Middle Ages little attention was given to sanitary matters, and epidemics often provoked ridiculous attempts at prevention. The modern history of tropical sanitation began from the time when the European nations commenced colonisation. About the middle of last century sanitation in Europe began to approach its modern growth and naturally affected tropical sanitation.

Correspondence.

"Audi alteram partem."

EPSOM COLLEGE.

To the Editor of THE LANCET.

SIR,—Will you allow me to call the attention of your readers to the educational and pecuniary advantages offered by Epsom College to the sons of medical men. These are briefly described in the advertisement appearing on the outside page (iv.) of the present issue of THE LANCET; but I should like in this letter to emphasise the facts that this year 10 boys out of 13 passed the whole of the first examination for medical degrees of the University of London, and that 18 boys out of 23 passed the matriculation examination of the same University, six of them gaining a first class.

May I also take this opportunity to remind those of your readers who are not already subscribers to the Royal Medical Foundation attached to Epsom College that this Foundation provides gratuitously an education of the highest class, together with maintenance, clothing, and pocket money, for 50 necessitous sons of medical men, and gives pensions of £30 each to 50 aged members or widows of members of our profession in reduced circumstances.

It is necessary to procure a sum of about £4500 a year in voluntary contributions to enable the continuance of these benefits to the medical profession; and as the numerous calls in connexion with the war are causing both the withdrawal and the curtailment of some annual subscriptions, I trust that numerous fresh contributors will be forthcoming to assist and encourage the Council at a particularly anxious time.

I am, Sir, yours faithfully,

HENRY MORRIS,
Honorary Treasurer.

Nov. 30th, 1914.

GAS GANGRENE.

To the Editor of THE LANCET.

SIR,—The report signed by Sir Anthony Bowlby and Dr. Sidney Rowlands which you have published on gas gangrene amongst our troops, in THE LANCET of Nov. 28th, is of considerable interest. A short account is given of the bacteriological findings, clinical aspect of the disease, and what they consider to be the necessary methods to adopt for the prevention of the spread of infection to others. Sir Anthony Bowlby and Dr. Rowlands state in this report that in their opinion the infection is directly due to wound contamination from the soil. In the Transactions of the Pathological Society of London in 1905 Mr. Percy Sargent and I published two cases of gas gangrene due to the bacillus aerogenes capsulatus and caused by infection of the wounds with street mud. We refer to the beneficial action of hydrogen peroxide on this type of infective gangrene. Since that paper was published in 1905, I have seen a large number of cases of gas gangrene due to the bacillus aerogenes capsulatus, and in every case the wounds were contaminated with manured earth or street mud. In several instances continuous flooding of the tissues with hydrogen peroxide (20 vols.) through deep incisions has led to recovery by rapid reduction of the general toxæmia and of the local condition.

Sir Anthony Bowlby and Dr. Rowlands draw

special attention to the bruising of the tissues in their cases and to the slight degree of pyrexia. In every case which I have seen bruising of the tissues has been most obvious and appeared to be closely related to the actual starting point of the gas gangrene, but severe pyrexia occurred in several of the cases which I have investigated. Probably the most interesting fact for discussion is the presence of the bacillus aerogenes capsulatus in the tissues without gas gangrene. I have cultivated this organism from cases of peritonitis, puerperal fever, bone abscess, and cystitis without the slightest evidence of emphysematous gangrene of the affected tissues, and although no special precautions have been taken by the nursing staff and those in charge no case of direct infection has ever occurred to my knowledge. This fact is of special importance when we consider the comparative frequency of severe infections caused by streptococci among those who come in direct contact with the infected tissues. It might be of interest to refer to a case of suppurative arthritis due to a shrapnel wound from which I obtained a pure culture of the bacillus aerogenes capsulatus. Gas gangrene was not present at the time of operation, and did not develop subsequently, although the infected pus came in direct contact with the wound. These observations on infections caused by this bacillus in man are in accordance with our knowledge of the subject derived from experimental data. Spreading gangrene can be readily produced in guinea-pigs by inoculating the animals with the bacillus, together with some fluid, which in itself is capable of acting upon the healthy tissues. An active growth of the organism in milk affords perhaps the most favourable material for experimental purposes. In my experience everything tends to show that this bacillus requires especially abnormal tissues before it will incite gas gangrene, otherwise it may simply give rise to ordinary suppuration. Whether the gas gangrene to which Sir Anthony Bowlby and Dr. Rowlands refer in their report is due to the bacillus aerogenes capsulatus alone or to other anaerobic bacilli with distinctive and practical differences will no doubt be finally settled.

I am, Sir, yours faithfully,

Dec. 6th, 1914. LEONARD S. DUDGEON.

"STRUMOUS HABIT OF BODY."

To the Editor of THE LANCET.

SIR,—Mr. Percy Dunn desires to know precisely what I mean by the term "strumous habit of body." I will try to explain to him as concisely as I can. I think we must go back to Celsus for an early use of the term struma. We find it now commonly used as a euphemism for scrofula, being a less disquieting one to employ when speaking of this condition in polite society. It is less precise than the term scrofula, because it has been, and still is, applied to other diseases—e.g., goitre—and it is employed to designate many lesions which are regarded as solely dependent on tuberculous invasion, which means no less and no more than the intrusion and growth of the bacilli of tubercle in various textures of the body.

In 1846[1] Dr. Robert M. Glover shrewdly propounded what I venture to regard as the correct view of this matter, pointing out that a careful distinction must be made between the predisposing constitution and the actual processes of tuberculosis, between the *ens in potentia* and the *ens in actu*, and that thus the subjects of scrofula widely diverged from normal health before tuberculous deposits took place. Mr. Dunn is therefore correct in presuming that I regard "scrofula" (but not necessarily) "as a pre-tuberculous state." He, however, proceeds to maintain that reasons exist for believing that the term, so considered, is misleading because many of the lesions now commonly called scrofulous are really manifestations of tuberculosis. I agree so far, but when he sets forth his main reason for objecting to the term strumous habit of body I must decline to accept his view of the question as set forth in the following paragraph: "Strumous symptoms, so-called, which are not tuberculous are evidence of perverted metabolism, due to hypothyroidism, the proof of which is furnished by the fact that under thyroid treatment these strumous symptoms vanish." Mr. Dunn thus alleges that he has abolished scrofula. This is good news for the victims of the strumous habit of body, for if we can materially alter this inborn textural quality we shall greatly reduce the inroad of tuberculous disease in multitudes of people.

A diathesis, or bodily habit, represents a soil, and this soil is favourable or unfavourable in different subjects to various irritants or infections. This doctrine, which has long been held and taught in the Edinburgh and Parisian schools, and by Paget, represents a great truth in practical medicine. Modern studies in bacteriology have largely confirmed the value of this teaching. To-day too much attention is paid to the seed, while the soil is largely ignored. The idea that "scrofula is tuberculosis," as declared by Koch, is in my view utterly wrong, and this opinion issued from the laboratory and not from clinical study. A scrofulous individual is all his life scrofulous, whether he be infected with tubercle or not. As has been well declared, "On nait, on vit, et l'on meurt scrofuleux." Tuberculous disease is only too likely to alight and flourish in such subjects, but it is no essential part of this abnormal habit of body. Scrofulous persons may, and certainly do, often reach old age, under favourable conditions, without contracting any overt or disabling tuberculous lesions. They commonly provide a favourable soil for all irritants and infections, being vulnerable beyond others, and slow to heal.

Lastly, I would note the fact in relation to this correspondence that in obvious cases of hypothyroidism such as myxœdema and cretinism, we rarely encounter tuberculosis as a complication.

I am, Sir, yours faithfully,

Grosvenor-place, S.W., Dec. 5th, 1914. DYCE DUCKWORTH.

[1] Fothergillian Prize Essay.

THE RADICAL CURE OF VARICOCELE.

To the Editor of THE LANCET.

SIR,—It is possible that a very simple method of excising affected veins may be useful at this time when many youths wish to have defects removed in order to fit them for active service. Even at the risk of being considered absurdly elementary, I venture to mention a few anatomical facts well known to medical students. The pampiniform plexus consists of eight to ten veins, which lie in front of the vas deferens, with the peculiarity—suspension of tortuous vessels, with defective valves, feebly supported in loose areolar tissue, a combination which favours dilatation and

sagging. And it is almost superfluous to add that the affection commonly known as varicocele is essentially a varicose condition of this anterior bundle of veins. Surgical intervention must be confined solely to excision of the offending vessels in order to avoid possible interference with the normal circulatory requirements of the testis.

If a little attention be devoted to the following simple manœuvre there will be no reason to fear subsequent testicular atrophy. Standing on the left side of the patient for left varicocele, I firmly grasp the whole structures of cord, midway between the external ring and testicle, between my left thumb and left index finger. Having assured myself that I feel the vas deferens securely fixed in its normal posterior position and the included skin between fingers rendered taut, I make a 1 to 2-inch incision over bulging part. With a few horizontal strokes of the knife the infundibuliform fascia is exposed, and when this is opened the pampiniform plexus juts into the wound. With a little further dissection the presenting veins are thoroughly exposed through the whole length of the incision; these are now caught up in mass by a pressure forceps, and the handle of scalpel completes their isolation from underlying structures. Catgut ligatures are then applied above and below, and an intervening segment (2 inches) of varicose clump excised. The stumps are approximated and testicle elevated by tying the upper and lower ends of the ligature together (Bennett).

The one cardinal factor in this three-minute, three-instrument (knife, forceps, and needle) procedure is boldly to continue horizontal strokes with the knife, and not to relax the left thumb and finger grip until the pampiniform plexus pops into view.—I am, Sir, yours faithfully,

JOHN O'CONOR, M.A., M.D. T.C.D.,
Senior Medical Officer, British Hospital, Buenos Aires.

Oct. 24th, 1914.

CHLORALOSE AS AN ANÆSTHETIC.

To the Editor of THE LANCET.

SIR,—Some few years ago Professor Richet, of Paris, introduced chloralose, a compound of chloral and glucose, as an anæsthetic for animals in experimental physiology. Although it is not much used in this country it is an invaluable drug for the purpose. Having had some experience of its very satisfactory action in cats and dogs it seemed to me that there is no valid objection to its use, or at any rate to giving it a trial, for general anæsthesia in man. Such trial may have been given it, but if any published reference to it has appeared it has escaped my notice.

Chloralose can be administered by the mouth, by the rectum, or subcutaneously. It is rather insoluble, but is very easily mixed with milk or butter. Mixed with the latter and spread on a bit of bread it is readily swallowed by a dog, and this is the method usually adopted by me. About 20 or 25 minutes after swallowing it the animal begins to show symptoms. The first thing noticed is a weakness of the hind limbs and a staggering gait. This weakness continues until paralysis of these limbs sets in at a time when the fore part of the body is still supported by the fore-limbs, so that the attitude is characteristic. In this stage or a little earlier salivation begins, and without evidence of restlessness or excitement the paralysis spreads to the fore-limbs. The animal is still fairly wide awake though stupid and shows no sign of discomfort or anxiety. Finally it goes quietly to sleep.

The reflexes are all unaffected or slightly exaggerated, the superficial more so than the deep. Before sleep supervenes the animal recognises a threatening movement, but the sense of sight apparently goes before that of hearing. For some time after the eyes have been closed in sleep the animal responds to sound, such as a whistle, by a pricking of the ears or a movement of the head. Even very slight sounds cause a response at a time when the animal is past opening its eyes, but ultimately a stage is reached about one hour or a little more after the dose is swallowed, when sound fails to cause a response. The reflexes are unimpaired throughout. In the early stages of paralysis onset the animal may walk about and may void urine. In such a case it sometimes topples over, but there is no sign of distress or discomfort. More often it remains quiet from the start.

The dose is 1 gramme per kilo of body weight. The anæsthesia is complete and lasts about two hours. A smaller dose may be employed and supplemented with ether.

From the humane point of view, if from no other considerations, chloralose is a very desirable anæsthetic in animals which sometimes show nervousness before being brought under the effects of such anæsthetics as ether, chloroform, &c. For effectiveness and convenience it is far superior to an anæsthetic which has to be continuously administered with careful observation and control of anæsthesia depth.

I am, Sir, yours faithfully,

D. T. BARRY, M.D. R.U.I., F.R.C.S. Eng.,
Professor of Physiology, University College, Cork.

Nov. 22nd, 1914.

DISTRICT NURSING IN LONDON.—The inaugural meeting of the Central Council for District Nursing in London was held on Dec. 1st at the Local Government Board. The council has been established as the result of two previous conferences, at which it was resolved :—

That a Central Council for London be established consisting of representatives of those engaged in district nursing and of others interested in the question, with the object of so systematising the arrangements for district nursing that there shall be adequate provision throughout the county.

There was a full attendance, including the President of the Local Government Board, Sir William Church, Sir Dyce Duckworth, Sir William Collins, Dr. W. J. Howarth, Dr. Lauriston Shaw, Dr. Christopher Addison, M.P., Mr. E. B. Turner, Dr. Martindale Ward, Dr. Major Greenwood, Dr. H. R. Carter, Dr. C. J. Harrison, and Dr. Charles Porter. After an introductory speech by Mr. Herbert Samuel, Sir William Collins was elected chairman and Dr. Addison vice-chairman of the council, and an executive committee of 25 members was appointed.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.—The inaugural meeting of this council was held at the house of the Royal Society of Medicine on Nov. 11th under the chairmanship of Sir Thomas Barlow, Bart., and a report of the proceedings appeared in THE LANCET of Nov. 14th. The provisional executive committee met on Nov. 23rd and directed that the minutes of the inaugural meeting should be circulated to all members of the National Council. In view of the amount of work which must be undertaken without delay in connexion with the present situation brought about by the war, the executive committee decided to appoint two subcommittees to endeavour to give immediate effect to the recommendations of the council. The honorary secretaries of the organisation are Dr. Douglas White and Mrs. A. C. Gotto, and the offices are at Kingsway House, Kingsway, W.C.

THE WAR.

THE KING AT THE FRONT.

The King spent nearly the whole of last week with his troops in France, and it is needless to say how much his visit was appreciated by all ranks of the Expeditionary Force and by the French and Belgian armies with whom they are coöperating. While in France His Majesty conferred decorations upon a number of officers, non-commissioned officers, and men, including several members of the Royal Army Medical Corps, whose names have appeared in official lists. The King also found time to encourage the medical personnel of the Expeditionary Force by making visits to many of the base hospitals, receiving hospitals and field hospitals, and showed his well-known keen insight into the details of hospital organisation and equipment, as well as his sympathy with the brave soldiers who are lying sick and wounded in a strange country.

THE DISTINGUISHED SERVICE ORDER.

To the list of officers of the Royal Army Medical Corps who have been appointed Companions of the Distinguished Service Order, in recognition of their services with the Expeditionary Force, published in THE LANCET last week, the following names are added:—

Lieutenant Henry Beddingfield:

For coolness and daring in repeatedly superintending removal of wounded from the firing line under heavy fire.

Major Sidney George Butler:

At Missy, on Sept. 15th. For coolness and courage in continuing all day to collect wounded under severe shell fire.

Captain Malcolm Leckie (deceased):

For gallant conduct and exceptional devotion to duty in attending to the wounded at Frameries, where he was himself wounded.

MENTIONED IN DESPATCHES.

The supplementary list of names to be added to those mentioned for meritorious service in Sir John French's despatch of Oct. 8th includes the name of Lieutenant H. Beddingfield, R.A.M.C.

Major-General Paris, commanding the Royal Naval Division, in his recently published despatch reporting the proceedings around Antwerp from Oct. 3rd to 9th, calls attention to the good services rendered, among other staff and brigade officers, by Fleet-Surgeon E. J. Finch, R.N.

CONSULTANTS TO THE FORCES.

Sir Berkeley Moynihan left for France on Dec. 4th to take up his appointment as Consulting Surgeon with the British Forces Oversea. Sir Bertrand Dawson, physician to the London Hospital, has entered upon his duties as additional Consulting Physician to the Forces, and Mr. W. T. Lister, ophthalmic surgeon to the London Hospital, has been similarly attached as Consulting Ophthalmic Surgeon.

THE CASUALTY LIST.

The following casualties among officers in the Royal Army Medical Corps and the Indian Medical Service serving with the Expeditionary Forces are officially reported:—

Killed: Major Pundit Piaraylal Atal, I.M.S., and Captain Kanwar Indarjit Singh, I.M.S.

Died of wounds: Lieutenant G. H. Chisnall, R.A.M.C.

Wounded: Major T. G. F. Paterson, I.M.S. (reported from the Persian Gulf).

Captain C. T. Edmunds, R.A.M.C., Captain F. T. Garland, R.A.M.C., and Captain E. M. Middleton, R.A.M.C., are reported through the United States Embassy to be prisoners of war.

Captain A. M. Pollard, R.A.M.C., and Captain H. G. Robertson, R.A.M.C., previously officially reported missing, are now unofficially reported prisoners of war.

CHOLERA IN CAMPS.

Experience has shown that cholera is one of the diseases liable to break out in camps or other gatherings where large numbers of men are crowded together in positions which have been chosen more for military than for hygienic reasons. The difficulty of adequately protecting sources of water-supply or providing proper latrine accommodation in such circumstances is obvious. The history of cholera during the recent campaigns in the Balkan peninsula is interesting in this connexion. Many thousands of cases occurred in 1912–13 in the Greek, Serbian, Bulgarian, and Turkish armies in the field. It is asserted that the infection was comparatively seldom waterborne, but was mainly spread by contact with persons suffering from the disease, or with infected articles, soil, or excreta. It is stated on good authority that the infection was commonly associated with dirty hands. Great difficulty was experienced in inducing recruits, especially in the Bulgarian army, to use the latrines provided for them, the men preferring to defæcate promiscuously in and around the camping-ground, the surface of which became in consequence greatly polluted with fæcal matter, some of it undoubtedly containing the specific vibrios of cholera deposited by convalescents or carrier cases. The excreta on the surface of the ground were trodden underfoot by many persons, and the boots of the soldiers were often coated with a mixture of mud and human fæces. On taking off their boots and nether garments the men's hands came in contact with this contaminated mud, and as opportunities for washing were seldom available, their meals were eaten with dirty and unwashed hands, the result being infection of the food. Though at the present moment there is, so far as we know, no cholera among the troops operating in Flanders or northern France, the possibility of the introduction of this disease cannot be lightly set aside, for the malady has been occurring in the eastern seat of war, in Galicia and other parts of Austria, as well as in Hungary. Austrian reinforcements, it is reported, have before now been sent to help the Germans in Belgium and France, and there is always the possibility of a cholera carrier being included in the drafts sent from eastern Europe to the west. If trenches occupied at one time by the Germans and Austrians were taken and reoccupied by the Allied troops it is possible that specific fæcal matter might be in these trenches. In that case the same method of contracting cholera that occurred in the Balkan camps might also easily occur in Flanders and northern France. But we know that sanitation is rigorously enforced in the British army, so that we have every reason to anticipate that the danger is reduced to the smallest dimensions. What applies to the diffusion of cholera in camps and trenches would apply equally well to

the spread of enteric fever and dysentery in the same circumstances.

NEUROSES AND THE WAR.

It is no doubt somewhat early in the day to attempt to draw conclusions of wide applicability as to any connexion between the stress and strain of the war and the development of hysteria, neurasthenia, traumatic psychoneuroses, and so on. Nevertheless, those who are coming in contact with the nervous side of the cases retired from the war are beginning to notice the frequency with which hysteria, traumatic and otherwise, is showing itself, not only among the Belgians, but also in officers and men of our own forces. In many cases the agency of auto-suggestion can be clearly established. A Belgian soldier was hit on the back, low down on the left side, by a heavy wooden sleeper blown off a railway truck in the explosion of a shell; he was knocked down half unconscious from shock and pain combined, and eventually brought to this country with paralysis of the left leg, which on examination turns out to be a hysterical palsy of the left leg from the hip downward of classical type. Another Belgian was leaning his left shoulder against the parapet of a trench when a shell blew in the whole side of the trench, and he was partly submerged in a mass of earth and stones. He instantly felt numbness and weakness of the left side of the body, symptoms which are now found to be characteristically hysterical. A lieutenant in a North Country regiment was invalided back to the base with so-called dysentery, on recovery from which he noticed that his legs were weak and painful. A diagnosis of neuritis was made, but on reinvestigation at home he was discovered to be suffering from typical hysterical paraplegia. Another officer strained his right side in carrying an unusually heavy wounded man to a safe position behind the trenches. Three days later he observed that he was dragging his right foot and that his right arm was weak, and on coming under expert observation he was found to present the familiar signs of hysterical hemiplegia. Such cases as these and others that might be quoted present features not only of clinical interest but of scientific and theoretical importance. It is curious that the patients themselves admit that they were in excellent physical condition before the incidents occurred to which their illness is attributed, and that questioning fails to elicit any history of analogous or indeed any nervous symptoms in earlier years. It may be, of course, that the rigor of the campaign has influenced them more than could be suspected, and that the particular incident comes as an exciting cause. But not all cases can be thus explained. Even though we grant that auto-suggestion is at work, the question remains whether physical factors such as fatigue, hunger, the strain of responsibility and constant attention on the organs of special sense, repeated air concussion from high explosives, and so on, in some unrecognised fashion so impress the nervous system of those who apparently were entirely normal as to pave the way for the action of such a force as auto-suggestion. It is a matter, at least, for serious discussion. Again, it seems at present to be the case that traumatic hysteria is more common than traumatic neurasthenia, although in industrial cases the latter is probably the more frequent neurosis. It would be a mistake to conclude hastily from insufficient data, but in this connexion also there is matter for fruitful investigation at a later stage. A number of important considerations in this respect may be left aside for the present. The question of the influence of emotion in the development of hysteria has often been discussed. M. Babinski, it will be remembered, holds that hysteria never originates in emotion, and instances in support of his views the absence of hysteria after the severe mental strain produced in the inhabitants who suffered from the earthquakes at Messina. The data furnished already by four months' war suggest that these views require revision. An opportunity has arisen for the reinvestigation of these vital problems of nervous and mental disease of which competent and experienced observers, we are glad to think, are already fully availing themselves.

OBITUARY OF THE WAR.

EDWIN BEDFORD STEEL, B.A., M.B., B.CH. DUB.,
MAJOR, ROYAL ARMY MEDICAL CORPS.

Major E. B. Steel, who died on Nov. 23rd from wounds received in action, was born in 1871 at Aldershot. He was educated at Rugby, where he won the "Crick" and was in the football XV., and at Trinity College, Dublin, and Dr. Steevens' Hospital, where he also distinguished himself as a footballer. He graduated M.B., B.Ch. in the University of Dublin in 1893, and joined the Royal Army Medical Corps in January, 1895, being promoted captain in 1898 and major in 1906. He served in India from 1897 to 1903, and again from 1907 to 1912, when he was made an Associate of the Order of St. John of Jerusalem in recognition of his services in connexion with plague duty. During the intervening period at home he was in command of a company at the Royal Army Medical Corps depôt at Aldershot, and qualified as a mental specialist. After his return in 1912 Major Steel was in command of the Higher Barracks Hospital at Exeter until the outbreak of war. He then went abroad in command of Field Ambulance No. 20, and was mentioned in dispatches for his good work at the army headquarters. At the beginning of October he was appointed Assistant Director of Medical Services attached to the 1st Cavalry Division. He was wounded by shell-fire on the morning of Nov. 23rd at La Clytte, and died that afternoon in Bailleul Hospital. Major Steel held the South African medal and the Durbar medal. He married in 1899, and leaves a widow, two sons, and a daughter. By his death the Royal Army Medical Corps loses a very able and devoted officer.

HUGH JOHN SLADEN SHIELDS, B.A., M.B. CANTAB., M.R.C.S. ENG., L.R.C.P. LOND.,
LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

Lieutenant H. J. S. Shields, who was killed in action near Ypres on Oct. 20th at the age of 27, was the son of the Rev. A. T. Shields, rector of Thornford, Sherborne. He was educated at Loretto School, Jesus College, Cambridge, and the Middlesex Hospital, where he was a scholar and prizeman, and qualified at the Conjoint Board in 1912, obtaining his medical degree at Cambridge last year. He received his commission in the Royal Army Medical Corps in July, 1912, and was attached to the Irish Guards when war broke out. Shields was a fine oarsman and a man of outstanding character. He stroked the Cambridge University boat in 1910, won the Lowe sculls, and rowed in the winning international eight at the

Ghent regatta in 1911. In the retreat from Mons he was captured while carrying out his medical duties, but rejoined his battalion ten days later, to the great joy of the men, who were devoted to him. After many days further fighting he was shot while heroically tending the wounded under heavy fire in the course of an attack upon a German position in Belgium. The Officer Commanding the Irish Guards in the course of a letter to Lieutenant Shields's parents has written: "The way in which he insisted on attending to wounded men under fire was the admiration of all of us..... A better and braver man never was." His name has been mentioned in Sir John French's dispatches. and his early death, although exactly the end which he would have chosen for himself, is felt deeply by a wide circle of friends.

THE BRITISH RED CROSS SOCIETY.—The summary of the work for the week ending Dec. 5th states that the number of Auxiliary Home Red Cross Hospitals accepted by the War Office to date is 544, containing beds for 16,272, including 1424 beds accepted during the past week, and distributed among the Army Commands as follows: London, 877; Southern, 5092; Aldershot, 787; Eastern, 3831; Northern, 2565; Western, 2919; Irish, 201.

The arrangements in connexion with Lord Iveagh's generous offer to establish, equip, and maintain for a year a hospital of 200 beds at Netley have now been completed. It will be known as the "Irish Hospital" and will form an extension of the existing British Red Cross Hospital there.

A request having been received from the Director-General, Army Medical Service, through the Hon. Arthur Stanley that the Netley British Red Cross Hospital should be devoted entirely to the reception of Indian wounded; as a temporary measure preparations have been made to receive as many as possible. All the wards are now practically ready.

It is gratifying to record that the whole of the 1650 beds for the "King George" Hospital, London, have already been endowed, and a sum of £41,250 has been received under this heading alone.

THE SECOND GENERAL EASTERN HOSPITAL (TERRITORIAL), BRIGHTON.—A medical correspondent sends the following notes of some interesting cases admitted from the front:—*Some cases of secondary hæmorrhage.*—Cases of secondary hæmorrhage have not been common. Of about 1000 men from the front, so far only eight cases have occurred. All followed bullet wounds, in one case of the upper part of the thigh, with secondary hæmorrhage from the external pudic artery, which was treated by ligature of the bleeding artery in the wound; a second in the lower part of the thigh, the anastomotica magna being the vessel affected. This was treated in a similar manner. The third case was a much more serious one; it was from the axilla, following a compound comminuted fracture of the upper end of the humerus. A large subcutaneous swelling very suddenly appeared under the pectoral muscles. This was incised, but it was found impossible to ligature at the bleeding point, and the subclavian artery was accordingly tied. All went well for about ten days, when hæmorrhage again occurred and was repeated on several occasions. To save the man's life it was decided to disarticulate the arm at the shoulder-joint. He is now doing quite well. The fourth case was that of a man who was shot through the palate, and who had severe bleeding from a palatine vessel some ten days later, on the separation of a large slough from the palatal wound. This was easily controlled by pressure, but the patient was in an exceedingly weak and emaciated condition on admission, and died a few hours later from exhaustion. The fifth case was that of a man with a shell wound of the right groin penetrating the bowel. In this man the piece of shell passed through the right groin, and lodged in the right iliac fossa, wounding the bowel. Fæces discharged through the opening in the groin, and brisk hæmorrhage occurred from the wound. This was opened up freely and the bleeding vessel, which was the circumflex iliac, was ligatured, the wound being left open and packed with gauze. A large piece of shell casing was removed from the wound, and the patient is doing well.

In another case a man received a bullet wound of the knee-joint. This suppurated profusely. He was suddenly seized with terrific secondary hæmorrhage from the popliteal artery. A tourniquet was at once applied and amputation at the lower end of the femur carried out. A seventh example is that of a wound of the arm, in which the bleeding was not from the main vessel, but from a branch, and was easily controlled. In the last case the wound was from a shrapnel bullet entering directly backwards just above the centre of the clavicle, which was broken in the middle into several pieces. There was a large sinus about an inch in diameter passing backwards. Secondary hæmorrhage, not extensive, occurred on several occasions, probably from the transversalis colli artery. This was easily controlled by pressure. It is hoped that, on removal of the bullet, treatment of the wound by peroxide irrigations will cause the sinus to close.

Bullet wound of kidney.—A bullet passed right through this man's abdomen, from front to back, and was followed by hæmaturia which lasted for five days and then ceased. No other symptoms were produced. This is a good example of the way in which a bullet will pass through a cavity containing delicate and important structures like the intestine without doing any damage to them.

Three cases of tetanus.—The first case was that of a man admitted for bullet wounds received at Ypres. His condition was as follows. In the right thigh there was a gutter wound four inches long and one inch broad, in the right arm a wound about two inches in diameter, and in the right axilla a ragged wound about one inch across. He appeared to be doing all right, when on the tenth day after his injury he complained that he felt stiff and that he could not open his mouth. 1000 units of antitetanic serum was at once injected and chloretone was administered, but in spite of this treatment and the repetition of antitoxin he died in about 48 hours. The second case was that of a man wounded in the forearm. When he arrived at the hospital his splints and bandage were removed. They had been on three days and no opportunity had occurred for dressing him during his transport. The arm was found to be gangrenous and was amputated. Tetanus developed two or three days later—i.e., about ten days after he had been wounded—and in spite of tetanus antitoxin and chloretone he died. The third case was very similar. A bullet wound of the arm followed by the development of tetanus in about ten days, the employment of chloretone and antitoxin, and death. This man had recovered from an attack of tetanus about ten years ago, following a bullet wound received in India. These cases seem to support the generally accepted view that tetanus with a short incubation period—i.e., less than 12 days—is a fatal disease in spite of the use of tetanus antitoxin.

Some bullet wounds of the brain.—Shrapnel bullet wound of skull. Depressed fracture. Cerebral irritation. Trephining. This man was shot in the head, the bullet causing a gutter wound of the back of the vertex three inches long. It had been sewn up at the French base hospital. On admission it was found to be suppurating and was opened up. It was then discovered that a piece of shrapnel remained in the wound, and that there was a fracture of the skull beneath. A few days later—about a fortnight from the receipt of the injury—signs of cerebral irritation (i.e., irregular pyrexia, somnolence, slow pulse, slight optic neuritis, &c.), manifested themselves. The patient was anæsthetised and the wound opened up freely. Several loose fragments of bone were removed. One of them, a triangular piece with a length of about half an inch each way, had been driven through the dura mater into the brain. The bone was chipped away all round, the loose pieces removed, and the wound left well open for drainage. The patient is doing well.

In a case of bullet wound of the brain there was a depressed fracture of the occipital region of the brain, which was opened up. An abscess, deeply seated, was found, with some loose fragments of bone. This was drained, and with the exception of some hemianopia, the patient has quite recovered. No trace of a bullet was found and none could be seen by X ray examination. Was it embedded deeply in the base of the skull, or had it struck the bone obliquely, glancing off and driving the fragments of bone in the brain in its flight?

Wound of bowel through the back.—Here there was a

wound of the lumbar region which became inflamed and through which gas and fæces escaped. No treatment beyond the application of antiseptic dressings was carried out, but the wound healed well. This is a good example of the "wait-and-see" policy of bullet wounds of important cavities.

Wound of the interscapular region and neck.—In this case the wound of entry was in the interscapular region, that of exit by the side of the thyroid cartilage. Beyond the presence of a little fluid in the pleural cavity no mischief was done—an excellent instance of the curious way in which a bullet passes near many important structures without doing any damage to any of them.

A case of facial paralysis following concussion from the explosion of a shell.—In this case the man had well-marked facial paralysis on the right side due to the explosion of a shell. No part of the shell struck him, but the general shock and concussion caused paralysis of the seventh nerve. He was also deaf on the same side, but this was probably due to his ear being blocked with wax or débris. There have been many cases of concussion of nerves due to the passage of bullets through limbs, causing paralysis, loss of sensation, &c., without any actual lesion of the nerve. This has been noticed especially in the arm. They have recovered in quite a short time. Much more difficult are those cases in which recovery is delayed, and in which it seems impossible to make an accurate diagnosis between concussion and an actual lesion of the nerve.

Some fractures of the jaw.—Explosive wound of the lower jaw. A man was shot in the face, the bullet entering at the left angle of the mouth, slightly grazing it, cutting off the tip of his tongue, and making its exit through the ramus of the lower jaw. The wound was a large one, three inches by two, lacerated, septic, discharging profusely, and showing a detached piece of exposed bone, a regular "explosive wound," and one of those so often wrongly attributed to dum-dum bullets. The wound is cleaning nicely after the employment of peroxide irrigations and chlorinated soda dressings. This is an excellent method of cleansing foul wounds, and is being largely used in this hospital now. A splint is being made for this man to keep his teeth and the fragments of the bone in as good a position as possible. In another case a bullet entered through the right cheek, passing through the right upper jaw and out through the mouth, which must have been open, as no wound was caused. The wound was very septic, but has improved very considerably since admission. This case has been treated on the verandah, and probably the free exposure to fresh air has, as in most septic wounds, contributed largely to the marked and rapid improvement. In a third example a bullet entered through the body of the lower jaw and remained embedded in the middle of the tongue—a most unusual position for a missile to lodge.

Two cases of aneurysm.—In the first case the patient had a traumatic aneurysm of the first part of the axillary artery; in the second case the aneurysm was of the brachial artery. In both instances the treatment undertaken was the same—namely, cutting down on the aneurysm and ligature of the vessel above and below.

An example of temporary burial alive.—The following is an interesting case and also quite unusual. Five men were in a trench when a German shell exploded, destroying the trench shelter. Three were killed, a fourth wounded, and the fifth buried completely under the earth. Fortunately a plank fell over his chest and, to some extent, protected him from crushing. He was buried alive for four hours, and when finally dug out he had just lost consciousness. He soon recovered and went back to fight in the trenches, but unfortunately in the accident he had lost his false teeth, and was therefore unable to masticate or digest his food. As a result he became ill, and was sent home for the purpose of obtaining a new denture. This story illustrates the importance of a good set of teeth for a man on active service. Three other cases in the first convoy of 47 admitted to the Kemp Town branch of the Brighton Hospital had been invalided home for exactly the same cause—namely, inability to masticate and digest the field food of the army on account either of lack or decay of teeth.

A man with complete loss of memory.—A man was admitted who had lost his memory. The only things he knew when admitted were his name and regiment. There was no sign of injury and no history whatever. No one knew anything about him, and one can only speculate that he received some very severe shock which has caused him to get into this condition.

Pickaxe wound of arm.—This very unusual method of producing a wound was due to the accidental infliction of a stab from a pickaxe by a comrade in the trenches. There was a punctured wound of the upper arm, which was profusely suppurating. It was treated by peroxide irrigation, and as it had most certainly been contaminated by earth he was given a prophylactic dose of antitetanic serum. Large numbers of cases of wounds have received this prophylactic injection before admission to hospital, in some instances even on the field.

Extensive flesh wounds.—Numbers of examples of large flesh wounds have been met with. For instance, one man had two large shrapnel injuries in the legs, one in the back part of the left thigh, a large foul wound, 12 inches by 6, and another slightly smaller on the back of the right calf. The improvement under treatment (peroxide washings, chlorinated soda dressings, with rest, good food, and fresh air, an ideal treatment for septic wounds) was very marked and immediate. Scarlet-red ointment is being applied to wounds of this description when they lose the foulness which they so often present on admission.

Some wounds of the eyeball.—There have been a few cases of wounds of the eyeball. In one man the left orbit was badly damaged and the eyeball lacerated by a bullet. This was removed in France. Strangely enough, up to now the man has no idea that he has lost his eye. Was it an eye blind or practically blind before injury, so that he does not miss it? In another instance a man had a scalp wound and a traumatic cataract, probably due to the penetration of a minute fragment of shrapnel. As there is in all likelihood a foreign body in the eyeball, an X ray examination is being made, and the eye will be removed if necessary. Another man had a small penetrating wound of the cornea, causing traumatic iritis, with anterior synechia, and cataract. A fourth case presented a gutter wound of the outer side of the orbit, followed by a good deal of chemosis of the conjunctiva. The eye was quite blind, although there was no obvious lesion. Query, was this due to concussion of the optic nerve?

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.—A meeting of this committee was held in the hall of the Royal College of Physicians of Edinburgh on Dec. 5th, when there were present the President of the Royal College of Physicians, the President of the Royal College of Surgeons, the President of the Royal Faculty of Physicians and Surgeons of Glasgow, the Deans of the Faculties of Medicine of Glasgow and Edinburgh Universities, and Dr. Ashley W. Mackintosh, representing the Dean of the Faculty of Medicine of Aberdeen University, Dr. J. C. McVail, Dr. J. R. Currie, Dr. J. Stevens, and Dr. Norman Walker (convener). The convener reported that there had been numerous applications to the committee for assistance in procuring locum tenents, and many offers of service from practitioners retired or temporarily unemployed. Though they had not been able to provide direct supply in all cases the influence of the committee had been of considerable value in promoting arrangements for the carrying on of the work of the men on service, while the recommendation of the committee that 5 guineas should be the maximum fee charged to men serving with the colours had apparently been loyally accepted. From several communications he had received it was evident that the financial arrangements between the men called out and their neighbours who were doing their work were not always satisfactory, and indeed in many cases no arrangements at all had been made. It was remitted to a subcommittee to consider whether it would be advisable to issue a series of model arrangements suitable to different varieties of practice which might help in averting difficulties that might arise, and to advise on any cases of immediate difficulty brought under the notice of the convener. It being evident that more men would before long be called out, the committee decided to make a fresh appeal for assistance to medical men and women who were in a position to help. A suggestion that the convener should address a meeting or meetings on the work of the committee was approved.

VACANCIES FOR MEDICAL OFFICERS.—We are asked to state that the reserve unit of the North Midland Mounted Brigade Field Ambulance is in urgent need of four medical officers. Applications should be made to the Officer Commanding Reserve Unit, North Midland Mounted Brigade Field Ambulance, Royal Army Medical Corps (T.F.), the Drill Hall, Nineveh-road, Handsworth, Birmingham. The pay as lieutenant is 14*s.* per diem, with 2*s.* for food allowance and 3*s.* for billeting expenses when necessary. £30 are allowed for uniform and £7 10*s.* for field equipment.

NURSING IN AUXILIARY HOSPITALS.—A resolution was carried unanimously at the annual meeting of the National Council of Trained Nurses of Great Britain and Ireland, held in London on Dec. 3rd, placing on record unqualified disapproval of the present organisation of the nursing of sick and wounded soldiers in military auxiliary hospitals at home and abroad. The Council, holding the opinion that the standard of nursing for the sick and wounded should be of the highest quality, earnestly petitions the Secretary of State for War, whose department is primarily responsible for the health and comfort of the troops, to prevent the expenditure of the munificent subscriptions of the public on inefficient nursing and the subjection of the sick and wounded to the dangerous interference of untrained and unskilled women, who have been placed in positions of responsibility for which they are not qualified, greatly to the detriment of the discipline in military auxiliary hospitals and the general welfare of the sick. The resolution has been sent to the Secretary of State for War.

THE BRITISH FIELD HOSPITAL FOR BELGIUM.—Since this hospital left Antwerp on the fall of that city it has been established at Furnes (between Dunkirk and Dixmude) under the immediate control of the Belgian Minister for War, and has been frequently visited by the Queen of the Belgians, who is its patron. The hospital is now under the direction of Mr. W. S. Perrin, until recently surgical registrar at the London Hospital, who is assisted by a staff of 7 surgeons and 22 trained nurses. A sum of £20,000 is needed for the efficient working of the hospital, which during the past month treated 1000 cases, and subscriptions are invited by the secretary, 21, Suffolk-street, Pall Mall, London, S.W.

EDINBURGH INDIANS' AMBULANCE CORPS.—The Edinburgh University Indian Field Ambulance Corps sent its second detachment on Dec. 6th from Princes-street station to New Hut Hospital, Brockenhurst. It comprised 13 subordinate officers: Corporals M. J. Khan and R. K. Syed; Lance-Corporals G. C. Sahgal and J. Lalthoo; and Cadets S. M. Dastgir, I. A. Shah, A. M. Ghosh, P. K. Ghosh, S. N. Seal, N. P. Singh, Y. Jan Kieam, G. Auditto, and B. P. Varma.

Sir Charles Ball and Sir Thomas Myles have been appointed consulting surgeons to the troops in Ireland, with the temporary rank of lieutenant-colonels in the Army Medical Service.

Sir James Mackenzie Davidson has lately been working upon an adaptation of the "telephone probe" which he devised 30 years ago for the localisation of metallic foreign bodies. The present modification is quite simple in use and has already been found of practical service at the time of operation, after the bullet or piece of shrapnel has previously been located by means of the X rays.

THE special exhibit of interesting objects and relics associated with naval and military surgery, nursing, and ambulance, which has been in course of arrangement at the Wellcome Historical Museum, 54A, Wigmore-street, London, W., will be on view from Monday next, Dec. 14th.

NEWTON ABBOT VOLUNTARY AID HOSPITAL.—The Newton Abbot (Devon) Voluntary Aid Hospital has been recently opened for the reception of patients, and now accommodates 45 wounded soldiers. The institution contains ten wards, operating room, X ray apparatus, &c. The hospital stands on an excellent site, and the grounds will be much appreciated by the patients. The medical staff consists of Dr. J. Culross, Mr. R. H. Grimbly, Dr. R. F. Higgin, and Dr. W. Patey.

Medical News.

UNIVERSITY OF OXFORD: DIPLOMA IN PUBLIC HEALTH.—The following have satisfied the examiners in the recent examination for the Diploma in Public Health (D.P.H.):—

Parts I. and II.—G. B. D. Adams.
Part I.—T. R. Bowen and A. E. A. Carver.
Part II.—F. S. Carson.

UNIVERSITY OF CAMBRIDGE.—The State Medicine Syndicate have appointed Dr. Henry Head, Trinity; Dr. Maurice Craig, Gonville and Caius; and Dr. W. H. R. Rivers, St. John's, to be members of the managing committee for the University Diploma in Psychological Medicine, to hold office for three years.—Dr. G. S. Graham-Smith has been appointed a member of the M.D. Degree Committee until Feb. 28th next in place of Dr. W. E. Dixon, who is now assessor to the Regius professor of physic.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee 23 cases were considered and grants amounting to £378 4*s.* voted to 26 of the applicants. An annuity of £20 was also made to one of the applicants. The following is a summary of the cases relieved:—

Daughter, aged 55, of M.R.C.S. Eng. who practised in Wiltshire and Devon. Late husband had been helped by the Fund, and on his death in June this year left his widow entirely unprovided for. Sister has helped her a little, but cannot continue to do so. One daughter, unable to help. Voted £12 in 12 instalments.—Widow, aged 69, of M.R.C.S. Eng. who practised in London, died in 1913, and left his widow totally unprovided for. Had commenced a boarding house, but was seized with aphasia and unable to carry it on. Made an annuitant of £20 and the Guild to try to get her into a home.—Widow, aged 65, of L.R.C.P. & S. Irel. who practised at Catford and Southend. Too old to work. Lives with a son and his family, who cannot afford to keep her. Has an Epsom pension. The case strongly recommended by the Guild visitor. Relieved twice, £18. Voted £12 in 12 instalments.—Daughter, aged 71, of M.D. Lond. who practised in North London. Unable to work owing to defective eyesight. Has recently obtained an annuity from another society. Proposes to apply for the Old Age Pension. Voted £2.—Widow, aged 51, of M.D. Edin. who practised at Newcastle-on-Tyne. Has C.M.B. certificate and earned a living by nursing, but fractured her leg some time since and is making very slow progress. A little help from a married daughter, but not enough to keep her. Voted £12 in 12 instalments.—Widow, aged 55, of M.D. Aberd. who died in 1904 and practised at Balham. Lost the little money left her by husband in assisting her only son, a mining engineer, in South Africa. The venture was a failure, and the son has joined the South African army. Qualified mental nurse, but finds difficulty in obtaining work on account of age. Voted £10 in two instalments and referred to the Guild.—Widow, aged 59, of L.S.A. Lond. who practised at Oldham and died in 1898. Youngest son, who has in the past entirely supported her, has joined the army, and up to the present has not had maintenance allowance. Two other children unable to assist. Voted £5 and recommended to apply to the Prince of Wales Fund.—Son, aged 18, of L.R.C.P. & S. Edin. who is also a recipient of the Fund. Assistance wanted for completion of education as a dentist. The case recommended by the Glasgow Branch of the Guild, and the current fees wanted £13 13*s.* The Guild undertook to provide £9 9*s.* and the Fund £4 4*s.*—Daughter, aged 55, of M.R.C.S. Eng., who practised at Liverpool. Suffers from asthma and internal trouble and unable to work. Uncle pays rent, but otherwise no income. Previous relief five times, £56. Voted £12 in 12 instalments and referred to the Guild.—Widow, aged 59, of M.R.C.S. Eng. who practised at Liverpool. Has endeavoured to earn a living by nursing, but only earned £19 this year. Age makes it difficult to obtain patients. Relieved five times, £25. Voted £12 in 12 instalments and referred to the Guild.—Widow, aged 56, of L.R.C.P. & S. Edin. who practised at Grantown, and died in 1913 and was a recipient of the Fund. Five children, all at school. Endeavours to earn a living by taking in boarders, but cannot make sufficient to support the family. Relieved once, £12. Voted £12 in 12 instalments.—Daughter, aged 63, of F.R.C.S. Eng. who practised at Chester. Acts as housekeeper when able to obtain posts, but has been unsuccessful of late. Relieved twice, £12. Voted £10 in two instalments.—Widow, aged 77, of M.D. Lond. who practised in London. Suffers from rheumatic gout in hands and feet. Only income two small annuities. Relieved seven times, £35. Voted £10 in two instalments.—Daughter, aged 48, of M.R.C.S. who practised in India and London. Unable to work owing to nervous breakdown. Only income £23 per annum from investments. Relieved once, £5. Voted £5 in one instalment and referred to Guild to see if they can assist her to have her teeth attended to.—Daughters, ages 62 and 56, of M.R.C.S. Eng. who practised at Bexley Heath. They try to obtain a living by needlework, but so far this year have only earned £6 5*s.* Only other income £20 from a friend. Previous relief ten times, £154. Voted £20 in 12 instalments.—Widow, aged 67, of L.R.C.P. Edin. who practised at Cardiff. Health very bad. Only income £24 per annum from another charity. Previous relief nine times, £66. Voted £12 in 12 instalments.—Wife, aged 48, of M.R.C.S. who practised at Chesham, but deserted her in 1905. Three children, the youngest at Epsom and others at school. Health very unsatisfactory and eyesight defective. Only income about £24 per annum. Previous relief, £12. Voted £12, with leave to apply again and referred to Guild.—Widow, aged 56, of L.R.C.P. Edin. who practised at Langley. Endeavours to earn a living by taking in paying guests, but unsuccessful of late. Lives in own house, but it is mortgaged. Relieved

four times, £40. Voted £10 in two instalments.—Daughters, ages 55 and 64, of an M.D. who practised in Cornwall. They both have poor health, but try to earn a living by taking in paying guests, but this year has been very bad. They live in own house. Relieved five times, £82. Voted £18 in 12 instalments. —Widow, aged 76, of M.R.C.S. Eng. who practised at Holderness. Health very bad. Has six children, 30 to 53, but they are unable to assist. Takes in lodgers when she can get them, but too old to do much. Relieved four times, £48. Voted £12 in 12 instalments.—Widow, aged 54, of L.S.A. Lond. who practised at Islington. Practically blind, and her youngest son, who practically supported her, has just joined the army. Her other son, married, unable to help. Relieved ten times, £64. Voted £18 in 12 instalments.—Daughter, aged 60, of L.S.A. Lond. who practised at Longton. Is suffering from spinal curvature and internal trouble. Only income £25 per annum and a little help from the Guild. Relieved 14 times, £152. Voted £18 in 12 instalments.—L.R.C.P. & S. Edin., aged 57, who practised at Old Kilpatrick. Suffering from spastic paralysis and unable to work. Lives with sister who keeps a boarding-house. One son, aged 18, whom the Fund and Guild are helping to educate as a dentist. Relieved ten times. £120. Voted £12 in 12 instalments.—Widow, aged 63, of M.R.C.S. Eng. who practised at Highgate. Has been ill some months and recently operated on for uterine fibroids, and suffers from rheumatism. Has earned a living by dressmaking. Relieved once, £12. Voted £12 in 12 instalments.—Daughter, aged 62, of L.R.C.P. & L.S.A. Lond. who practised at Brixton. Unable to earn own living owing to deafness and ill-health. Only income a little from sister. Relieved nine times, £104. Voted £12 in 12 instalments.—M.R.C.S. Eng., aged 80, who at one time practised at Great Yarmouth. Advanced age prevents him from working; has an Epsom pension and occasionally obtains an appointment as ship's surgeon. Relieved three times, £36. Voted £12 in 12 instalments.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 11, Chandos-street, Cavendish-square, London, W.

Sir George Birdwood, K.C.I.E., M.D., the Anglo-Indian veteran, celebrated the eighty-second anniversary of his birthday on Tuesday last.

IRISH WOMEN'S NATIONAL HEALTH ASSOCIATION.—The annual meeting of the Women's National Health Association was held last week in Dublin. Reports were made of the various activities in which the association has been engaged. It was stated that 1739 patients had been treated at Peamount Sanatorium in the two years of its existence and 229 at Rossclare.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At the last monthly meeting of the Royal College of Physicians of Ireland held on Dec. 4th a presentation was made to the College by Miss Gerrard of a portrait of Dr. Jonathan Osborne, who was President of the College in 1834-35, and was for several years one of the King's professors in the School of Physic. Dr. James Little, senior Fellow of the College, and one of the last surviving of Osborne's pupils, made the presentation on behalf of Miss Gerrard.

ROYAL COLLEGE OF SURGEONS IN IRELAND. STUDENTS' UNION.—The inaugural address to the Students' Union of the Royal College of Surgeons was given on Dec. 3rd by Mr. T. E. Gordon, F.R.C.S. Irel., who chose as his subject "The War." His lecture was chiefly directed to the members of the union who had joined or were about to join the colours. It was stated that already more than 400 alumni of the College were on service. An interesting discussion followed, in which the Lord Mayor of Dublin, General Friend, and Mr. Justice Barton took part.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CHETWOOD, T., M.B. Lond., D.P.H. Oxf., has been appointed Lecturer on Hygiene in the Training Department of the University of Sheffield.

DILLON, FREDERICK, M.B., Ch.B. Edin., has been appointed Clinical Assistant at the West End Hospital for Diseases of the Nervous System.

DONELAN, JAMES, M.B. R.U.I., M.Ch., has been appointed Official Medical Referee to the Comité de Londres of the Croix Rouge Française.

FIELD, O., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Battersea District of the county of London.

GILLILAND, HANS, M.B. Edin., has been appointed Medical Superintendent of the Whiteabbey Sanatorium, Belfast.

MACADAM, WILLIAM, M.D., B.Sc. Glasg., D.P.H. Camb., has been appointed Demonstrator in Public Health in the University of Sheffield.

SHOOLBREAD, THOMAS B., M.B., C.M. Edin., has been appointed Resident Medical Officer to the Dispensary, Carlisle.

VERRALL, P. JENNER, M.B., B.C. Cantab., F.R.C.S. Eng., has been appointed Medical Officer to Epsom College.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and laundry.

BARNSTAPLE, NORTH DEVON INFIRMARY.—House Surgeon. Salary £100 per annum, with board and laundry.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with board and laundry.

BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Junior House Surgeon. Salary £100 per annum, with residence, board, &c.

BIRMINGHAM, LITTLE BROMWICH FEVER HOSPITAL.—Assistant Resident Medical Officer. Salary £200 per annum, with board and residence.

BIRMINGHAM UNION.—DUDLEY-ROAD INFIRMARY: Second Assistant Medical Officer. Salary at rate of £210 per annum. Third Assistant Medical Officer. Salary at rate of £170 per annum. Fourth Assistant Medical Officer. Salary at rate of £160 per annum. SELLY OAK INFIRMARY: Assistant Medical Officer. Salary at rate of £180 per annum. All with apartments, rations, laundry, and attendance.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BRADFORD, ST. LUKE'S HOSPITAL AND UNION HOUSE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with rations, apartments, and washing.

BRENTWOOD UNION INFIRMARY AND SCHOOLS, Warkworth House, Isleworth, W.—Second Assistant Medical Superintendent, &c., unmarried. Salary £200 per annum.

BURLEY-IN-WHARFEDALE, SCALEBOR PARK ASYLUM.—Assistant Medical Officer. Salary £250 per annum, with rooms, board, attendance, and washing. Or Locum Tenens for winter months. Salary £5 5s. per week.

BURY AND DISTRICT JOINT HOSPITAL BOARD.—Assistant to Medical Superintendent. Salary £200 per annum, with board, washing, and lodging.

BURY COUNTY BOROUGH.—Temporary Assistant to Medical Officer of Health. Salary at rate of £350 per annum.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Senior House Surgeon and Junior House Surgeon, unmarried. Salaries £100 and £90 per annum respectively, with board, lodging, and washing.

CANTERBURY, KENT COUNTY ASYLUM.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—House Surgeons for six months. Salary at rate of £100 per annum, with board, residence, and laundry.

CARDIFF, KING EDWARD VII. WELSH NATIONAL MEMORIAL ASSOCIATION.—Assistant Resident Medical Officers at Sanatoria. Salary £150 per annum and maintenance.

CHICHESTER, WEST SUSSEX COUNTY MENTAL HOSPITAL.—Second Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, and attendance.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £75 per annum, with board, residence, and washing. Also Physician to Out-patients.

CITY OF WESTMINSTER UNION INFIRMARY, Fulham-road, S.W.—Second Assistant Medical Officer and Third Assistant Medical Officer. Salaries £160 and £140 per annum respectively, with board, residence, and washing.

CLIFTON, YORK, NORTH RIDING ASYLUM.—Locum Tenens Medical Officer. Salary £250 per annum, with apartments, board, &c.

DARTFORD, KENT, DARENTH INDUSTRIAL COLONY FOR THE FEEBLE-MINDED.—Third Assistant Medical Officer, unmarried. Salary at rate of £250 per annum, with board, lodging, and washing.

DORSET COUNTY COUNCIL.—Assistant County Medical Officer of Health. Salary at rate of £250 per annum.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £65 per annum, with board and washing.

DURHAM, SHERBURN HOSPITAL.—Medical Officer. Salary £300 per annum and house.

EAST WILTS UNITED DISTRICTS.—Medical Officer of Health and Assistant School Medical Officer. Salary £450 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Honorary Dental Surgeon. Also Ten Qualified Clinical Assistants in Out-patient Departments.

FALKLAND ISLANDS.—Assistant Colonial Surgeon. Salary £400 per annum.

FIFE DISTRICT ASYLUM, Cupar.—Senior Assistant Medical Officer. Salary £170 per annum, with rooms, board, and attendance.

GAINSBOROUGH URBAN DISTRICT COUNCIL.—Medical Officer of Health. Salary at rate of £100 per annum.

GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Resident Medical Officer. Salary £120 per annum, with board, residence, and laundry.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.

HUDDERSFIELD, STORTHES HALL ASYLUM, Kirkburton.—Assistant Medical Officer. Salary £250 per annum, with rooms, board, attendance, and washing.

JHARIA MINING SETTLEMENT, Bihar, India.—Chief Sanitary Officer. Salary Rs.1200 (£80), rising to Rs. 1500 (£100) a month, with house.

KENSINGTON AND FULHAM GENERAL HOSPITAL, Earl's Court, S.W.—Dental Surgeon.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LIVERPOOL, BROWNLOW HILL INSTITUTION.—Resident Assistant Medical Officer. Salary £200 per annum, with apartments and usual resident allowances.

LIVERPOOL INFECTIOUS DISEASES HOSPITAL.—Locum Tenens Resident Medical Officer. Salary 5 guineas per week, with board, washing, and lodging.

LIVERPOOL, MILL-ROAD INFIRMARY.—Temporary Resident Medical Officer. Salary 5 guineas per week.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—House Surgeon for six months. Salary at rate of £60 per annum, with board and residence.

LONDON HOSPITAL.—Surgeon.

LONDON LOCK HOSPITAL, Harrow-road, W.—House Surgeon at Female Hospital. Salary at rate of £130 per annum, with rooms, board, and washing.

MAIDSTONE, KENT COUNTY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £250 per annum, with board, quarters, attendance, washing, &c.

MANCHESTER, ANCOATS HOSPITAL, Mill-street.—Resident House Physician. Salary £130 per annum, with board and apartments.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £180 per annum, with apartments, attendance, coal, and gas.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with residence, board, and washing.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Two Assistant House Surgeons. Salary at rate of £40 per annum, with full board and washing.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.

MORPETH DISPENSARY.—House Surgeon, unmarried. Salary £120 per annum, with rooms, coal, gas, and attendance.

MUCH WENLOCK, KING EDWARD VII. MEMORIAL SANATORIUM, Shirlett.—Resident Medical Superintendent. Salary £300 per annum and all found.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Anæsthetist.

NEW HOSPITAL FOR WOMEN, Euston-road.—Assistant Obstetrician (female).

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NORTHAMPTONSHIRE COUNTY COUNCIL.—Assistant School Medical Officer. Salary £25 per month.

NORTHAMPTON GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with apartments, board, washing, and attendance.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry.

NOTTINGHAM, RANSOM SANATORIUM, Sherwood Forest, Mansfield.—Resident Medical Officer. Salary £200 per annum, with board, residence, and laundry.

NOTTS COUNTY COUNCIL.—Tuberculosis Officer. Salary £450 per annum.

PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—District Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary £80 per annum, with board, residence, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £75 per annum, with board, lodging, and washing.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Resident Medical Officer. Salary at rate of £150 per annum, with board and washing.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.

SALFORD FEVER HOSPITAL.—Junior Resident Medical Officer.

SALFORD ROYAL HOSPITAL.—Resident Surgical Officer and Casualty House Surgeon for six months. Salary at rate of £120 and £100 per annum respectively, with board and residence.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £75 per annum, with apartments, board, lodging, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salaries £100 and £80 per annum respectively, with board, residence, &c.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board and residence.

SOUTHEND-ON-SEA COUNTY BOROUGH.—Assistant Medical Officer of Health and Assistant School Medical Officer. Salary at rate of £300 per annum.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

SUNDERLAND ROYAL INFIRMARY.—Senior Resident Medical Officer. Salary £150 per annum, with board, residence, and laundry.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £125 per annum, with board, washing, and attendance.

TAUNTON, SOMERSET AND BATH ASYLUM, Cotford.—Assistant Medical Officer. Salary £250 per annum, with apartments, board, washing, attendance, &c.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

TRINIDAD LUNATIC ASYLUM.—Assistant Medical Superintendent. Salary £250 per annum, £80 ration allowance, bachelor's quarters.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

UNIVERSITY OF LONDON.—Examiners.

WAKEFIELD, CLAYTON HOSPITAL.—Senior House Surgeon. Salary £160 per annum, with board, lodging, and laundry.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon and Anæsthetist. Salary £110 per annum, with board, residence, and laundry.

WARRINGTON COUNTY BOROUGH.—Temporary Assistant Medical Officer of Health. Salary £250 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary at rate of £200 per annum, with board, apartments, and laundry.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Resident House Physician for six months. Salary at rate of £100 per annum. Also Honorary Anæsthetist.

WEST HAM COUNTY BOROUGH.—Assistant School Medical Officer. Salary £300 per annum.

WEST HAM UNION.—INFIRMARY, Whipps Cross-road, Leytonstone, N.E.: Second Assistant Resident Medical Officer. Salary £250 per annum, with usual residential allowances. SICK HOME, 95, Forest-lane, Forest Gate, E.: Deputy Medical Officer. Salary £250 per annum, with usual residential allowances.

WEST RIDING COUNTY COUNCIL.—School Medical Inspector. Salary £325 per annum.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—House Surgeon for six months, with board and lodging.

WILTS COUNTY COUNCIL GENERAL EDUCATION COMMITTEE.—Temporary Assistant School Medical Inspector. Salary at rate of £300 per annum, with travelling and maintenance allowances.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and washing.

YORK COUNTY HOSPITAL.—House Physician for six months. Salary at rate of £150 per annum, with board, residence, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Shildon, in the county of Durham; at Crowle, in the county of Lincoln; and at Tobermory, in the county of Argyll.

Births, Marriages, and Deaths.

BIRTHS.

BINNS.—On Dec. 2nd, at Humberstone-road, Leicester, the wife of C. C. H. Binns, M.A., M.B., of a daughter.

JOHNSTON.—On Dec. 1st, at Bangalore, India, the wife of Lieutenant-Colonel C. A. Johnston, I.M.S., of a son.

LOUGHBOROUGH.—On Nov. 29th, at Pretoria, South Africa, the wife of A. L. Loughborough, M.R.C.S., L.R.C.P., of a daughter.

MCSHEEHY.—On Nov. 22nd, at Wimbledon, the wife of Captain O. W. McSheehy, R.A.M.C., of a daughter.

OGILVY.—On Dec. 2nd, at Long Grove House, Epsom, the wife of David Ogilvy, M.D., of a daughter.

PARKS.—On Dec. 1st, at Hawthorn Lodge, Walton-on-Thames, the wife of Norris J. Parks, L.D.S., of a daughter.

SMITH.—On Dec. 3rd, 1914, at the Red House, Virginia Water, the wife of G. W. Smith, M.B., Ch.B., temporary Lieutenant, R.A.M.C., of a son.

MARRIAGES.

BREWERTON—TINDALL.—On Nov. 28th, at Christ Church, Brondesbury, N.W., Wright Brewerton, F.R.C.S., to Olive, youngest daughter of the late A. McIvor Tindall, M.R.C.S., and of Mrs. Tindall, of Market Harborough.

SKINNER—BENEY.—On Dec. 2nd, at Hong-Kong, Alexander Hugh Skinner, M.D., to Winifred Mary, second daughter of W. A. Beney, J.P., of Beckenham.

DEATHS.

HILLIARD.—On Dec. 6th, Henry Charles Hilliard, M.D. Lond., of White Hill, Bletchingley, Surrey, in his 71st year.

MORTON.—On Dec. 1st, suddenly, Albert S. Morton, M.D., M.R.C.S., of 63, Mexfield-road, East Putney.

SCOTT.—On Dec. 1st, at St. Aubyns, Hove, Edwin Irwin Scott, M.D., in his 68th year.

TAYLOR.—On Dec. 2nd, at Kennington Park-road, S.E., Herbert Taylor, M.B. Lond., aged 64 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

OFFICIAL MANNERS.

OUR readers may remember the circumstances in which the Ilford urban district council, after many endeavours, succeeded at last in getting rid of its medical officer of health; we referred to the matter on several occasions and expressed our opinion of this local authority's attitude and behaviour. A correspondent now sends us the postcard, which we reproduce below in facsimile, omitting only the name of the medical man to whom it was addressed. Our correspondent explains that this postcard sent through the ordinary post with a halfpenny stamp was the only acknowledgment made by the Ilford urban district council of an application for the vacant medical officership of health.

Ilford Urban District Council.

ADAM PARTINGTON,
Clerk and Solicitor.
Telephone: 850 Ilford (2 lines).

TOWN HALL,
ILFORD

(Quote as heading.)

Sir, re Medical Officer of Health.

I am directed by my Council to thank you for your tender herein, and to inform you that it was not successful.

A cheque for the return of your deposit will be forwarded in due course.

I am, Sir,
Your obedient Servant,

Adam Partington.

Clerk of the Council.

At the request of the council the candidate had sent to a list of councillors provided for that purpose some 25 printed copies of his application for the post, costing him upwards of £2. It will be noted that the card (which is printed in imitation typewritten characters with a facsimile signature) is really a form of rejection of a tradesman's tender for supplies, which has very crudely been made do duty in another capacity. Apart altogether from the question of taste, the receipt of such a card through the open post might conceivably be most embarrassing to an unsuccessful candidate. Nevertheless, as our correspondent hastens to add, his own personal feeling is one of relief at not being appointed to serve a body which exhibits such methods of economy.

VIRCHOW AND THE WAR.

To the Editor of THE LANCET.

SIR,—Nearly 20 years ago the following paragraph was published in an annual widely read by the French people. It would be interesting to see how far Virchow's prognostications will come true in the present upheaval.

"Désarmer ou périr: tel est, pour les nations européennes, le terrible dilemme qui s'impose aujourd'hui.

"Les armements poussés sans trêve ni repos, c'est le microbe de la guerre semé à pleines mains et sans discontinuité. Car plus le voisin voit le voisin armer, plus il se croit dans l'obligation d'armer lui-même. Et cette course effrénée au clocher des armements (c'est: au clocher de la mort qu'il faudrait dire) continuera ainsi jusqu'à l'exténuation, jusqu'à l'épuisement des forces, jusqu'à l'extinction de la vie. Je me trompe. Lorsque les gouvernements verront la vacuité effroyable de leurs coffres-forts, et qu'ils se rendront compte de l'impossibilité de pouvoir les remplir à l'aide de nouveaux impôts—toutes les ressources étant taries et la capacité impositive de leurs pays respectifs réduite à néant—ils se précipiteront à corps perdu dans la guerre, avec l'espoir de sortir enfin d'une situation sans issue.—Dr. Virchow."

I am, Sir, yours faithfully,
London, Dec. 8th, 1914. A. S. F.

POCKET HEATERS.

To the Editor of THE LANCET.

SIR,—I read last week that the latest German recruits had been supplied with pocket electric radiators for warming purposes, but I understand that such an apparatus would require constant recharging, the facilities for which would often be impossible to obtain in the fighting line. A day or two ago I read in an article in a lay paper that a retired Russian colonel had recommended a pocket heater used by the Russian troops. I see it is now advertised under the name of the Kyron heat-giver. A few years ago the "Instra" pocket warmer, which was practically on the same principle, was introduced into this country. The stick of fuel in these heaters is apparently some kind of carbon wrapped in paper. These pocket radiators are of Japanese origin, and I first saw them about 25 years ago, when they consisted of a most gaudy highly-coloured box for the pocket or muff, and they then attracted attention as a curious novelty from the Far East; they were looked upon more or less as an ingenious toy, but they have since been improved. A thick slab of glass heated up makes a clean heater and retains heat well, although it is not easy to get a slab which will stand the heat without cracking after a time. A small solid cube of steel heated on the fire-bars and dropped into a small tobacco or mustard tin will make a heater sometimes too hot to hold and will last an hour. It is on the principle of the Russian tea-urn or "samovar," where the red-hot block of metal or carbon is dropped into the middle of the tea-urn in a compartment made for it.

I am, Sir, yours faithfully,
London, Dec. 8th, 1914. X. Y. Z.

INSURANCE ACT PRESCRIBING.

THE Forfarshire Local Medical, Panel, and Pharmaceutical Committees have issued a useful little pamphlet entitled "Official Rules for Prescribing and Formulary," which is marked "For private circulation only," and yet is priced at 1s. The rules, which appear to have been drafted in consequence of the great increase in the drug bill for the area, have been devised to check excessive or reckless prescribing as a result of a complete scrutiny of all the Insurance Act prescriptions during three months. From this it was found that a considerable portion of the charges upon the drug fund could have been avoided without loss of efficiency and even with advantage to insured patients by properly directed economy in prescribing. Particular points worthy of notice in these rules are a total prohibition of patent or secret medicines, and the use of corresponding official drugs and preparations in place of proprietary articles where possible. A list of such corresponding drugs and official formulæ for proprietary articles is appended, as well as a stock preparation pharmacopœia of the usual hospital type.

THE CHILDREN'S DINNER FUND.

A BAZAAR in aid of the Children's Dinner Fund, promoted by the London Vegetarian Association, will be opened at the Memorial Hall, Farringdon-street, E.C., to-day, Saturday, Dec. 12th, at 3 P.M., by Mrs. Despard. There will be an exhibition of food, and cookery demonstrations will be made, including the use of the Hay box or fireless cooker.

THE AFTER-CARE ASSOCIATION.

THE After-Care Association for Poor Persons Discharged Recovered from Asylums for the Insane earnestly appeals for funds to carry on and extend its work. The association, which is the only one of its kind in the United Kingdom, assists cases in all parts of the country in various ways. Secretary: Mr. H. Thornhill Roxby, Church House, Westminster, S.W.

UP-TO-DATE SPELLING.

FROM a second-hand bookseller's catalogue: "..... This work is an extremely rare one, and it is upon it that the present translation is based; considerable alterations and (it is hoped) improvements have however been made, and *anti-quated authography* has been corrected."

HELICON.

WE have received from the Castle Laboratory, Jeffreys-place, London, N.W., a sample of Helicon tablets, each containing 5 grains of pure acetyl-salicylic acid. It is, we are told, "entirely British manufactured," and conforms, we find, with the standards of purity laid down in the British Pharmacopœia, 1914.

C. T.—Our correspondent will find the following references in THE LANCET to the use of iodine for wounds in war time. August 17th, 1912 (p. 463), abstract of a paper read in the Navy, Army, and Ambulance Section of the British Medical Association meeting on The More General Use of Iodine in First-Aid Treatment of Accidental Wounds. Clinical Note, by Mr. Edmund Owen, F.R.C.S., in THE LANCET of Oct. 11th, 1913 (p. 1063), on Tincture of Iodine as a Household Remedy for Wounds and Skin Surface Cleaning. Letter in THE LANCET of Jan. 3rd, 1914 (p. 75), on Iodine in the Dressing of Wounds (Experiences in the Balkan War).

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

WEDNESDAY.

SECTION OF THE HISTORY OF MEDICINE (Hon. Secretaries—Raymond Crawfurd, Leonard G. Guthrie): at 5 P.M.

Papers:

Dr. George Peachey: A Seventeenth Century Medical Superstition.

Mr. C. J. S. Thompson: The Apothecary in England rom the Fourteenth to the Sixteenth Century.

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—S. E. Dore, A. M. H. Gray): at 5 P.M.

Exhibition of Cases (at 4.30 P.M.):

Dr. Knowsley Sibley: Case of Angiokeratoma.
Other cases will be shown.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Paper:—Mr. J. H. Barnard: X Rays in Relation to Microscopy.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Paper:—Dr. A. Balfour: Tropical Problems in the New World (illustrated by slides).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

TUESDAY.—5 P.M., Bradshaw Lecture:—Sir Frederic Eve: Acute Hæmorrhagic Pancreatitis, with Remarks on the Etiology of Chronic Pancreatitis.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 10.30 A.M., Dr. Simson: Gynæcological Demonstration. 12 noon, Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

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Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Dec. 9th, 1914.

Date.		Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Dec.	3	29·720	WSW	...	73	51	44	44	45	Cloudy
,,	4	29·666	S.W.	0·19	59	52	45	47	50	Overcast
,,	5	29·446	S.W.	...	74	45	39	37	39	Cloudy
,,	6	29·690	S.	0·08	56	56	35	36	37	Cloudy
,,	7	29·364	S.W.	0·09	59	54	37	48	51	Overcast
,,	8	29·560	S.W.	...	73	53	47	46	48	Cloudy
,,	9	29·580	S.	...	50	49	46	47	48	Overcast

The following magazines, journals, &c., have been received:—British Dental Journal, Journal of State Medicine, Archives of Roentgen Ray, Transactions of the Society of Tropical Medicine and Hygiene, Interstate Medical Journal, Indian Medical Record, Cornell University Medical Bulletin, Public Health, Polyclinic, &c.

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